The Builder.

VOL. LXI. No. 2544 SATURDAY, NOVEMBER 7, 1891.

ILLUSTRATIONS.

Cathedrals of England and Wales: XI., Lincoln.—Drawn by Mr. John Begg ..... *Double-Page Ink-Photo.*
Plan of Lincoln Cathedral.—Measured and Drawn by Mr. A. Beresford Pite ..... *Double-Page Photo-Litho.*
Western Towers, Lincoln Cathedral.—Drawn by Mr. John Begg ..... *Single-Page Ink-Photo.*
Capitals, Lincoln Cathedral.—Drawn by Mr. T. Rogers Kitsell ..... *Single-Page Ink-Photo.*
North Transept of Lincoln Cathedral.—Drawn by Mr. John Begg ..... *Double-Page Ink-Photo.*

Blocks in Text.

Japanese Diaper Patterns ..... Page 341

CONTENTS.

"Garden-Craft"	339	London County Council	353	**General Building News**	355
Decorative Art of Japan. IV.	340	Liverpool Engineering Society	354	**Foreign and Colonial**	356
Notes	343	Competitions	354	**Miscellaneous**	356
The Royal Institute of British Architects	344	Light and Motion	354	Meetings	357
Lincoln Cathedral	348	Hours of Work	354	Recent Patents	357
The Architectural Association	351	Newington Library Competition	354	Some Recent Sales of Property	357
The Institute of Civil Engineers	353	**The Student's Column.—Marbles, XIX.**	354	Prices Current	358

"Garden-Craft."

IN the charming book published under this title* we have the last words which J. D. Sedding had to say upon art. The book was placed complete in the hands of his publishers, but he did not live to see it published. Both in the nature of the subject and the manner of its treatment it is a singularly appropriate memorial of its author. It embodies the expression of his love of gardens and flowers, and illustrates at the same time the essentially poetic and enthusiastic manner of treating such a subject which was natural to him. Of garden-craft in the more technical sense, of rules or precepts for laying out a garden, there is little in it; it is in truth, as he himself (from an expression in his preface) evidently felt, somewhat rambling and discursive. "Once upon a time complete in itself, as a brief treatise on the technics of gardening delivered to my brethren of the Art-Workers' Guild a year ago, the essay had no sooner arrived with me at home, than it fell to pieces, lost gravity and compactness, and became a garden plaything,—a sort of gardener's 'open letter,' to take loose pages as fancies occurred." But the discursiveness is so attractive and the fancies expressed with such an original charm of manner, that few readers would desire it other than it is. It may not teach us how to lay out gardens, except in regard to some of the special points likely to press themselves on an architect's attention, but it teaches us to see and feel some of the poetic beauty of the garden as an element in the artistic setting of the habitation.

Three questions are indeed propounded "to try what the yoke of classification may do to keep one's feet within bounds"; viz. (1) What is a garden and why is it made? (2) What ornamental treatment is right and fit for a garden? (3) What should be the relation of the garden to the house? The first question is apparently treated in the chapter "On the Theory of a Garden." A garden is described as "man's transcript of the woodland world; common vegetation ennobled; it is man's report of earth at her best." This no doubt must be taken with modification. The most enthusiastic lover of gardening would not wish to see all nature laid out garden-wise, and it is plain enough from other passages in the book that Sedding would have been one of the last to wish this. The beauty of a garden is a beauty in relation to man's home. As the author says on another page, "it is Arcady brought home; man's bit of gaudy make-believe, his well-disguised fiction of an unvexed Paradise," which very word indeed originally signified an enclosed pleasance, a place shut in from the assaults of the world. Nor does the author fail to note a certain moral influence of the garden on the disposition of man. "There is no spot like a garden for cultivating the kindly social virtues. Its perfection puts people upon their best behaviour. Its nice refinement secures the mood for politeness. Its heightened beauty produces the disposition that delights in what is beautiful in form and colour. Its queenly graciousness of mien inspires the reluctant loyalty of even the stoniest mind. Here, if anywhere, will the human hedgehog unroll himself and deign to be companionable."

All this points to the idea of a garden as formal, a refined work of art, not a mere enclosure of a portion of natural scenery. And this view have poets for the most part taken of it, in spite of the odd fact that Pope, the most artificial of poets, left behind him a jeer at the artificiality of gardens. Sedding quotes Mr. Alfred East's remark as to the strange combination of autumn and spring tints in Japan; but he might have adduced Milton as an ally, who introduces the same idea in perhaps the most beautiful and rich description of an ideal garden in all poetry, that at the close of "Comus:"—

> "Along the crisped walks and bowers
> Revels the spruce and jocund spring;"

but two lines later he flings in the glories of summer too:—

> "There eternal summer dwells,
> And west winds, with musky wing,
> About the cedared alleys fling
> Nard and cassia's balmy smells."

This was the garden of a celestial clime, not limited by the stern actualities (in England) of the seasons; but the taste of Milton and his contemporaries, who are full of garden allusions, lay especially in "trim gardens," gardens laid out as artistic creations, not as mere imitations of nature. And old gardens of this type which have been faithfully kept up have an added charm of human history and association connected with them. To quote Sedding's feeling words on this head:—

> "In the case of an old garden, mellowed by time, we have, I say, to note something that goes beyond mere surface-beauty. Here we may expect to find a certain superadded quality of pensive interest, which, so far as it can be reduced to words, tells of the blent influences of past and present, of things seen and unseen, of the joint effects of nature and man. The old ground embodies bygone conceptions of ideal beauty; it has absorbed human thought and memories; it registers the bequests of old time. Dead men's traits are exemplified here. The dead hand still holds sway, the pictures it conjured still endure, its cunning is not forgotten, its strokes still make the garden's magic, in shapes and hues that are unchanged save for the slow moulding of the centuries. *Really*, not less than metaphorically, the garden growths do keep green the memories of the men and women who placed them there, as the flower that is dead still holds its perfume. . . There is a wealth o quiet interest in an old garden. We feel instinctively that the place has been warmed by the sunshine of humanity; watered from the secret spring of human joy and sorrow."

It is this human association, this spirit of the past brooding tenderly over the scene, which imparts a certain glamour to an old garden, and hence to the antique form of gardening generally, independently of its mere artistic charm. It impresses us in the same kind of way as does the faded stateliness of the old mansions of the Renaissance period, and the taste for these and for the style of gardens by which they were surrounded seems to have revived simultaneously, as it is but natural that it should. And we must take account of this accessory influence of association in considering the charm which this formal type of garden is now exercising on the minds of the present generation, if we would avoid the danger of being so far led away by poetic association as to confound this with abstract artistic perception of the fitness of things. It is in regard to this rehabilitation of the formal garden in all its formality that we should raise the one question that we are disposed to raise in regard to the tendency of Sedding's book. Illustrations such as those of the old garden at Levens (page 22) and "A garden enclosed" (page 48), given without any criticism, have a tendency to make the reader

* Garden-Craft, Old and New. By the late John D. Sedding. With Memorial Notice by the Rev. E. J. Russell. London: Kegan Paul, Trench, Trübner & Co. 1891.

think that Sedding was recommending this extreme form of artificiality more than we think, from some passages, was his real intention. At all events, if it be intended to imply that the cutting of trees into square blocks, or into shapes of birds or artificial objects, is a desirable form of treating a garden, we must beg respectfully to suggest that this is not a good or a true taste, and we doubt if it would be thought so by anyone if it were now introduced for the first time. It is the pleasantness of the antique association about it that beguiles people; but apart from that it is not to be defended, at least not in its more elaborate and fantastic forms. We do not object to the trimming of hedges into a square section; that has an architectural and monumental effect which connects the garden with the architecture of the house. As in the case of those mighty parallelograms of yew hedge which flank the grassed court in front of Blickling Hall, and look as if one could drive a coach-and-four along the top of them, there is not only a grandeur of architectural effect imparted by them, but also a sense of antiquity and stability of possession; they look like the work of undisturbed centuries of growth and training. But we cannot say that we find the square-cut lumps of foliage symmetrically placed in Levens garden very beautiful; they are old-world, and attractive to the fancy in that sense, that is all; and we take up our parable against all and every kind of chopping of trees into imitation shapes. It is a false taste, only respectable historically; and we regret that Sedding should have lent a countenance to it which is perhaps more apparent than seriously intended.

We are entirely in favour, however, of formal arrangements in gardens, provided the formality does not degenerate into trickery A garden is a work of art, and the so-called art of the typical "landscape gardener," which consists in adroitly arranging things so as to look natural and at the same time to be "effective," is a mere sham art, a compromise which is neither the one thing nor the other. Art in gardening is one thing, nature another; both beautiful in their way; but art trying to beguile you into the belief that it is nature is only an offence to the feeling as soon as it is found out, as it is certain to be. We are therefore entirely in sympathy with the spirit in which Sedding answers the second of his two questions, What ornament is right and fit for a garden? The very fact of enclosure separates it from nature; it is a creation of man in which something is superadded to nature, or the materials afforded by nature are used according to man's own design. The attempt to make the sublime, or even the picturesque, on a small scale and within the limits of a garden, can only result in absurdity: the thing may look well at the first glance, but it is soon seen through. In short, a garden is a thing made by man; let it appear as such.

This consideration leads to a short historical discussion of the English garden, in which Sedding has collected a good many notes from garden treatises as well as from literature, strung together in a pleasant rambling fashion, and also goes into some criticism on the ideas of some of the leading gardening writers and professors of past days, not forgetting Bacon's suggestive and trenchantly-written essay, in which the Chancellor seems to hover between his natural feeling for the poetic interest of a garden, and a kind of half-suggestion that he thinks some of the matters a little beneath him,—"these are but toys." Sedding is naturally bitter (as far as he could be bitter) against Kent and Brown, but does justice to the merits of Repton, who, in spite of mistakes for which his time rather than he was responsible, was a man of genius in his way. The author is indulgent also to the Dutch garden, which he considers a very natural development from the character of the Dutch landscape; "the world," he avers, "is happier for the Dutch garden." The Dutch world is, no doubt. The merit of the English garden is that, while sufficiently artificial to be a work of art, it does not lose touch with nature; it rather melts imperceptibly into nature; "stops, without ending." This is in fact part of the whole philosophy of the relation of the garden to the house:—

"Around or near the house will be the ordered garden with terraces and architectural accessories, all trim and fit and nice. Then comes the smooth-shaven lawn, studded and belted round with fine trees, arranged as it seems with a divine carelessness" [we fear that is a touch of the landscape-gardener!]; "and beyond the lawn, the ferny-heather turf of the park, where the dappled deer browse and the rabbits run wild, and the sun-chequered glades go out to meet, and lose themselves 'by green degrees' in the approaching woodland,—past the river glen, the steep patch of grass and corn, the cottages and stackyards and grey church tower of the village; past the ridge of fir-land and the dark sweep of heath country into the dim waving lines of blue distance."

That is the true relation of the English garden to the house and the landscape; it is the connecting link between architecture and nature. Hence, we think, the over-formality of trees cut into patterns is for another reason to be deprecated; besides being a somewhat unworthy way to treat trees in themselves, it draws the garden rather too closely to the architecture and cuts it off too decisively from nature. Whatever be its precedents and associations, we like it not in modern gardening.

For the suggestions given in the chapter on "The Technics of Gardening" we must refer the reader to the book. We have little criticism to make on them. They deal mostly with the garden from the architect's point of view, as the setting of the house; and Sedding observes truly that the design and laying out of a garden should be worked from the house *outward*, whereas it is too much the habit of the landscape-gardener to work from the confines of the estate *inward*, towards the house, which is the last thing thought of, if indeed it is thought of at all. And we quite sympathise with Sedding in his denunciation of Mr. Robinson's truly "landscape-gardening" idea that the worst thing that can be done is to introduce into a garden "any feature which never changes," *i.e.* architectural features, terraces, embankments, &c. Under this rule we presume sundials would all be removed! Let it be the aim, says our architect-gardener, rather "to give to gardening all the method and distinctness of which it is capable." The typical English cottage-garden, overrun with a profusion of gay flowers in every part, "which not nice art but Nature boon poured forth," has indeed its own beauty, but then it is essentially a "cottage"-garden. The garden of the mansion is a different matter; it should have an air of distinction, of nobility, something entirely opposed to rusticity; and in effecting this end, symmetry and artificial design are indispensable elements.

By a curious half-humorous turn, Sedding adds at the end a chapter "On the Other Side"; "In Praise of Savagery" in a garden. It was very like him thus whimsically to turn round at the last moment and see what could be said on the opposite side from that for which he had previously been arguing; but he takes care not to make the arguments in favour of "savagery" too convincing, and there is no doubt on which side his own convictions remained.

Perhaps the book itself is a little too much like the cottage-garden aforesaid, an unrestrained growth of flower-like fancies rather than a formally-planned treatise. If it is not exactly a practical treatise on gardening, however, it is something better—it is delightful reading, and at least tends to make one love the subject. The book is prefaced by an interesting and feelingly-written biographical memoir by one of the author's friends, the Rev. E. F. Russell.

MUNICIPAL BUILDINGS, RICHMOND.—The foundation-stone of the new municipal buildings at Richmond was laid on the 31st ult. by Alderman Sir J. W. Ellis, Bart., M.P. The site of the new buildings has an area of three-quarters of an acre, and lies between Hill-street and the river, in the centre of the town. The architect of the new buildings is Mr. W. J. Ancell, of London. Besides the buildings, the site includes a new street, to be called Castle-road, leading down to the river, and also some pleasure gardens.

DECORATIVE ART OF JAPAN.—IV.

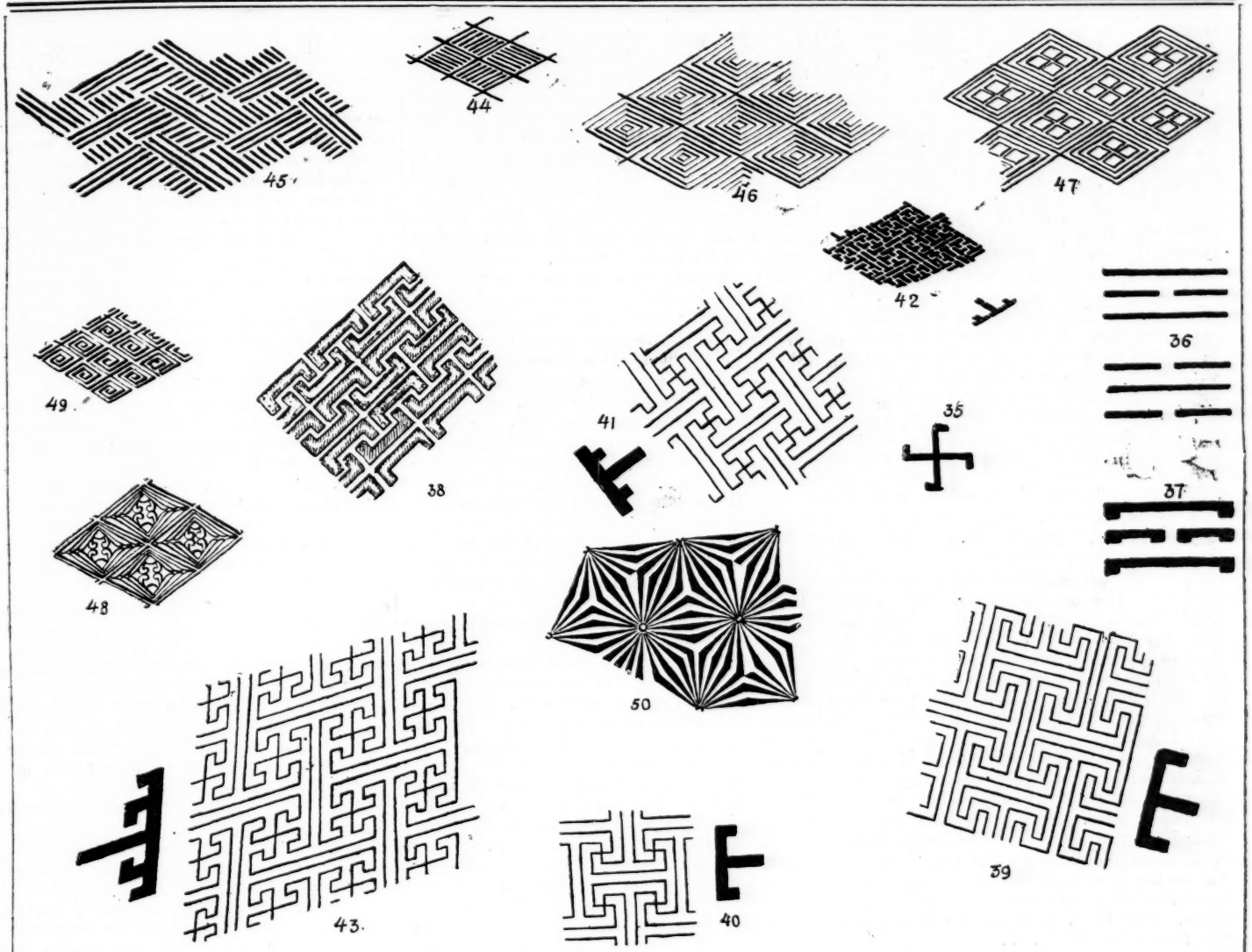
BY AN ENGLISH RESIDENT IN JAPAN.

(*Concluding Article.*)

LET us turn now to the pictorial art of Japan. Much of it depends for its charm on the simplicity of the means, other than the vigorous transcription of leading lines, on which I have dwelt already, which it adopts for producing its effects. It revels in suggestion. Much of it is in monochrome, with the merest dash of local colour; and even in the monochrome the tints used are very few, the full tone, however, being always very prominent. Much of the detail, too, is left to the imagination, whether it be detail of form or of foreground; the middle distance may often be supplied at will. The technical difficulties in the way of executing such pictures in materials less easy to manipulate than ordinary pigments are obviously much diminished. The canons of the art can be observed as faithfully by an artist working with gold lacquer as by one working with Chinese ink. The wood-carver and the worker in metals, the embroiderer, and even the dyer, know that the masses of colour which their materials produce correspond entirely with the masses of colour which the painter produces with one sweep of his brush. The art of these workmen is identical with the art of the painter; the result is a monochrome painting in shades of gold or steel, in silken threads or in the natural colour of the stuff which the wax has kept from the dye; a painting which is as effective, and is possessed of the same charms, as a kakemono in black and white.

Again, the "fragmentariness,"—a word coined to meet the occasion,—is a very marked feature of a great deal of the work of a certain school of painters. Two monkeys will be playing on a branch which is cut sharply by the edge of the paper; a family of cranes will nestle from the storm on a snow-covered rock, which is terminated in an equally abrupt manner. The method of dealing with a subject may be good, bad, or indifferent; it is one of the ingredients which go to make up the fascination of the art, the *chic* on which I have already dwelt; but it does not concern me now to examine into it, though it may be remarked in passing that it does not differ greatly from the way in which our own landscapes are treated. It is sufficient to note that it is a feature of the pictorial art of the country, and that it is not exclusively confined to pictures on paper or silk. The point, then, that I wish to make is this, that where this fragmentary spray-work is used it will be found almost invariably to be executed in the same way as a picture is executed, and that it is simply a form of pictorial art, and in no way connected with decoration; that, for example, a shallow plate will be used to convey a painting of a crane hovering over a pine-branch,—a painting, it is true, in a very simple style of art, but in more enduring materials than ink and paper; but that the plate will be subsidiary to the subject, and not the subject an ornament to the plate. The plate stands to the painting in the same relation as the silk or paper to the picture. But there are other charms which may enhance the value of the plate,—the fineness of its paste, the lustre of its glaze, the perfection of its colour, and the skill which has overcome technical difficulties. Exuberance occasionally makes the fancy of the artist run wild, and a spray of flowers will be continued on the other side; this, however, scarcely affects the argument, and I am not sure, indeed, whether this is really considered by the Japanese themselves to be good and serious art.

Let us turn, however, from this picture to its Western grotesque. Most patient reader, I will endeavour to call up to your mind's eye a sample of it. Imagine, then, a dessert-service of china, the shape of dishes and plates unexceptional, for they bear the impress of a well-known firm; the price a sum unmentionable, and the colour of the ground that delicate, celadon green which itself is a faint echo of the most delightful of



Japanese Diaper Patterns.

the colours the earths and glazes of the East have combined to produce. Thereon are drawn sprays of flowers coming, *à la Japonaise*, from the edge, and birds flying to or nestling among them. But the drawing of the birds is horridly impossible, and, as to proportion between them and the flowers, why either they must have been snared in Lilliput or the flowers culled in Brobdingnagian gardens. But even this is a small matter compared with the execution of them. The whole subject is first painted in black outline, and the petals and stalks and features simply dabbed with colour. My firstborn, aged six, painting the woodcuts from the *Illustrated London News* in his scrap-book, does not produce such grotesque monstrosities. Yet these plates I know are a very fair sample of Anglo-Japanese work. In truth, our art-workmen have attempted a task which is beyond them. The sadness of it is that they are not the only ones who try their hands and our patience; they are not worse than he who framed his pictures all askew; but one and all, from highest to lowest, painter and workman, they seem to revel in the practice of an art of whose first principles they are most profoundly ignorant.

Notwithstanding the very great prevalence of this peculiar form of art, I think that the Japanese stand in the first rank among the exponents of the true principle of decoration, the use of line for line's sake. But before examining this work in detail, there comes uppermost the inevitable inquiry, what were the sources of their inspiration? I must confess at once that I cannot summon up the profound ethnological enthusiasm which this question awakes in many minds. I prefer to deal only with Japanese decorative art as I find it. And I think this art might conveniently be divided into two classes,—the derived art and the indigenous. A religion that is characterised by a profusion of ceremonial appeals to the arts to adequately maintain that ceremonial. If the religion travels, it travels with its arts attendant. Such a religion is the worship of Buddha; and so it journeyed, making, as it were, an artistic progress from India, through China, through Corea, to Japan. So the derived art of the Japanese springs from the same source as its derived religion. If the religion had remained as it came, the story of the Buddhism of Japan would be found in the story of Indian Buddhism. If the art which embellished that religion had remained as it came, the study of the decoration of the Japanese Temples would be but a repetition of the study of the Indian temples.

But neither the one nor the other remained unchanged; both the religion and the art received a characteristic impression from the people among whom they had come to dwell; and as to the art, it was, without doubt, brought into line with, and affected with the same cultured grace as the art indigenous to the country. Therefore, I think that such a division as the one I have hinted at is both superfluous and inconvenient, and that the decoration of the temples may be viewed as Japanese art.

Sources of the inspiration of Japanese decorative art are indeed to be found in Corean, Chinese, and Indian art. The trace of Arabian art, too, is distinct and unmistakable; and the suggestion of intercourse between Arabia and Japan is authenticated by accurate authorities, who tell us that many of the bowls used in the celebrated tea-ceremonies were, in the earliest days of their foundation, brought from Arabia. But, in truth, all the peoples of the East held communication one with another in what, to Westerns, is a prehistoric time. Artistic influence follows in the track of commercial intercourse as surely as light attends the pathway of the sun; where there has been such intercourse the art traces will be surely found. But the converse is a dangerous proposition, though its proof provides delightful exercise to many an ingenious mind. I have been considerably puzzled to find remarkable resemblance between some of the temple ornament and our own Tudor decoration, and have almost felt disposed to suggest that Will Adams may have preserved from the wreck some goods or chattels bearing the unmistakable impress of the Elizabethan age. The range which such inquiries open out is a profitless one from an artistic point of view; it is, therefore, sufficient to note that, in addition to Eastern intercourse, the Portuguese and Dutch obtained a foothold in Japan, and that the Jesuit missionaries, towards the close of the sixteenth century, have been computed at 60,000. In this connexion, however, one extraordinary resemblance between the Greek key pattern and some of the patterns in common use in the East has probably given the curious greater trouble than any other similar question.

It will be noticed that a curious cross-like figure is repeated at regular recurring intervals, facing alternately to the right and to the left. This symbol is well known in the East as the *Svastika*, or *Fylfot* (fig. 35). "It is a mystic diagram," says Mr. Anderson in his British Museum Catalogue of Japanese and Chinese Paintings, "of wide diffusion and great antiquity. It is mentioned in the *Râmâyana*, and found in the rock temples of India, as well as amongst all the Buddhistic people of Asia; and, as the emblem of Thor, even amongst Teutonic races. In China it is regarded as the symbol of Buddha's heart, —*i.e.*, of the Esoteric doctrines of Buddhism, and it is the special mark of all deities worshipped by the Lotûs school. In Japan it has the same significance as in the middle kingdom, and is sometimes used for very long periods of time or *Manji*—literally, ten thousand years."

The learned editor of the *Japan Mail* has further suggested that its two members have the same significance as the *Yang* and *Yin* which I have already noticed,—the representation of the male and female elements in

creation, the combination being used to signify completeness and perfection. He has also suggested that one of the members used alone is the origin of the iron S so well known on the walls of old English houses, and used undoubtedly as a charm against fire. So we come once more upon the oft-told story of how large a part the symbolism of religion has played in art. Nor are the races of the East alone in the decorative uses to which they have put the emblems of all they esteem highest and noblest. But they alone have learnt the magic of weaving them into more complex and mysterious tracery. The effect which this form of diaper produces is very singular. If it is carved in woods or hammered in metal, the play of the light and shadow broken up into long and short lines, apparently almost at random, is singularly charming, and provokes a feeling of wonderment at the maze of lines, and a longing desire to find out the method of its production. I have been able to find no explanation of its evolution; I, therefore, make the following suggestion. Whatever the method may have been, I imagine that it must have been very gradual. We must first, however, go back to another mystic Chinese symbol, the *Pa-koua*. This consists of eight sets of three parallel lines, one or more of them being split into two equal parts. Different forms of these are given in fig. 36. Of this symbol M. du Sartel says that it goes back to the origin of all times, that it is supposed to have been revealed by the dragon himself to Fou, the legendary founder of the Chinese monarchy, whose first tracing of it has remained with us to the present day. It is composed of eight triple parallels, or eight suspended lines. In the *Pa-koua* are embodied all the secrets of the creation, and from them philosophers and magicians have for centuries sought the unravelling of the mysteries of nature and of the world's existence. The lines, however, sometimes take the form given in fig. 37. Probably the first idea of diaper patterns originated in the desire to emphasise mystic symbols by perpetual repetition, by forcing them on the attention wheresoever the worshipper might look; that admiration of the beautiful should never obliterate the thoughts of the world's great secrets. And so one limb of the *Pa-koua* seems to have been taken, and out of it the diaper given in fig. 38 seems to have been created. The start in an artistic direction having been once made, the inventive genius of the Eastern designer would seek eagerly for new combinations. I have come across the diaper given in fig. 39, which seems to have been developed from the primitive one last figured. The development does not seem, however, to be perfectly natural, and I think there must have been an intermediate stage, which, though I have not actually seen it, I venture to suggest must have been the diaper, fig. 40. The transition from fig. 38 to this one seems perfectly natural and easy. In the first we have the simple limb placed back to back in couples: but the intervening spaces would suggest the possibility of introducing another set of couples running at right angles to the first set: the necessities of construction compelled the space between the couples to be preserved. Fig. 40 is in effect four of the *Pa-koua* limbs locked together in the manner of a child's puzzle. In this figure the constructive limb is lost sight of, the eye resting on the regularly repeated pattern formed by the locking of the terminal joints, which is, in fact, the *svastika*. The possibility of making a graceful diaper which should combine two mystic symbols having thus been revealed, the Chinese designers seem to have at once sought for fresh variation of the main idea. The first was achieved in a very simple way. The projecting joint of the *Pa-koua* limb was moved inwards from the ends by the space of its own thickness, and the process of fitting repeated with the result given in fig. 41. These later figures differ from fig. 38 in one respect; in that the *Pa-koua* limb is used solid, in these its outline only is used, and it is in this form that these diapers are invariably seen. In constructing the limb of the design this necessitates the introduction of the long central member as shown in the figures, this being made really by the lower lines of another pair of limbs placed back to back at right angles to the first, and with a space intervening between them. Fig. 42 is another exceedingly charming variety of this pattern used as an iron fret-work panel in one of the gates of the Temple of Iyeyasu. I have assumed so far that the little projections of the *Pa-koua* limb are placed at right angles to its main direction. Probably this would originally have always been the case: but as the *cloisonné* pattern developed, it was found that this was unnecessary, and greater elegance was obtained by setting them at different angles, the angle of those going in one direction being of course complementary to that of those going in the other. Ingenuity was not yet, however, exhausted. In fig. 43 we have a still more complicated design. The projecting joints once more became the terminals of the *Pa-koua* limb, and between these and the long central limb a quarter of the *svastika* itself was introduced on either side, and facing inwards so that the remaining space on the inside was double of the remaining space on the outside. This also was found capable of being worked up on the puzzle process, resulting in the charming pattern given in the figure.

We have, however, still to deal with fig. 39. If I am right in interposing fig. 40 between it and the primitive fig. 38, it becomes obviously a mere development of that figure. It is formed by interlocking four *Pa-koua* limbs whose terminals are made double their usual length. The locking, however, does not completely cover the surface: if four coloured pieces of paper are locked together in this fashion, a small square will be left blank in the centre of each figure formed by the terminals. This figure is not a *svastika:* but the diaper is an exceedingly important one. If a slice of it be taken, half a *Pa-koua* limb in height, we come at once to the "back-to-back" key-pattern which is common in Chinese ornament. I have said already that I have not at present sufficient materials to continue this investigation into the other forms of key-pattern. I think, however, one may advance so much with safety: that forms of the "Greek fret," as it is called, are indigenous to Chinese art and to its offspring, Japanese art; and that it owes its origin in the East to the mystic symbolism of the *Pa-koua*. I leave to others to determine whether it was also arrived at independently by the Greeks.

From the *Pa-koua* we get, therefore, the following results:—First a diaper (fig. 38), in which its characteristic limb is used quite simply; secondly, a diaper (fig. 40) in which their limb is used in a complicated manner, this giving rise to two distinct branches of ornament.

The first being all those diapers in which the *svastika* is constructed, and which we have nicknamed the *cloisonné* patterns (figs. 41, 42, and 43); the second being the diaper (fig. 39) (and possibly similar ones) which by being cut into slices produce the Chinese "Greek fret."

For constructive purposes, the following measurements may be found useful.

The projection on the *Pa-koua* member is always of the same thickness as the main portion of the member; the inside measurement of its length being either the same as, or double, its breadth.

Taking the thickness of the *Pa-koua* member as the unit, the length of the limb in fig. 39 is 9 units; in fig. 40 it is 7 units. In fig. 41 it is also 7 units, the long central limb measuring $3\frac{1}{2}$ units by 1; and there is one unit on either side of the small projection which is, as before, one unit in length and one in breadth. In fig. 42 the measurements are the same. In fig. 43 the limb is 11 units long, and the central limb $5\frac{1}{2}$ units. The *svastika* member is 2 units high and 2 units long, leaving 2 units on either side of it at its base, the end one of which is occupied by the small *Pa-koua* projection.

Reverting to diapers in general, their prolific use is almost the first thing that strikes one in studying Japanese temples. From an artistic point of view, and apart from the symbolism of many of them, they are eminently suited to the character of the native workmen; the genius of the people stands revealed in this small matter just as it does in larger matters. Time never seems to have been of the essence of their contract. It is true that in the common details of every-day life, such as the catching of trains, this is not an estimable quality; but of art it is the vital essence. It is also true that in the days of old Japan there was no question of contract: the workman worked his life through for his lord; both the time and the rice supply were his: it was not a question of bartering the one or the work produced in it for the other. I am not sure that such conditions would suit a Western workman, or would call out his best energies; but it acted so on the Japanese craftsmen of the feudal period; the elimination of time from his thoughts, the knowledge that there was rice both sufficient for the day and the morrow, turned his work into love's labour; the magnitude of the task never seems to have tempted the workman to scamp it, in the hope that in the multitude of its details some flaws would escape undetected. At the top or at the bottom, in the places on which the eye rests first, or in those shadows which only the curious might ever penetrate, there is to be found the same unfaltering execution, the same steadiness of line, the same faithful workmanship. Both master and man were prodigal of labour. In the Temple of Iyemitsu, which may be put in the very foremost rank as a masterpiece of inventive and executive skill, there is literally not a square inch left plain. It is simply smothered in fine work and blazing with gold and colour. Much of its splendour is undoubtedly due to the prolific use of carved and gilded diaper work. The doors and beams and pillars glitter and sparkle in the sunlight; the effect is perpetually changing as you move, and now the shadows and now the lights force themselves in rapid alternation on the notice, and for this reason the blaze of gold never for one moment strikes one as gaudy. The gold only fulfils its proper destiny of being but a means to an end, that end the intensifying the thousand beams into which the diaper splits up the sun-rays. The result of a diaper is to cover a surface with a pattern drawn only in actual light and shade, and a pattern which changes with every change of light and every change of the beholder's position. In the temple of Iyeyasu the diapered gateways are painted white, and are of extreme beauty. Nothing but the most exquisitely-finished workmanship could stand the test. Some of these diapers accompany this article. Figs. 44 and 45 are elementary, being composed of nothing but lines crossed plaitwise. The structure of fig. 45 is, however, rather difficult to unravel. Figs. 46 and 47 are two varieties of a simple lozenge pattern; fig. 48, a more elaborate and very beautiful one which covers a red lacquered door in Shiba. The composition of fig. 49 is bewildering at first sight. It will be found, however, to be based on the *svastika*, the ends being continued in a lozenge maze. But, perhaps, the most beautiful and bewildering of all is the star-like pattern in fig. 50. It is deeply carved and scatters the light in most delightful and fantastic fashion.

F. T. P.

NOTES.

WE have received one or two letters urging us to speak in support of those who would do away with compulsory study of Greek at the Universities, and in opposition to the vote of the majority at Cambridge last week. As the subject is not one of those generally supposed to be within our province, we presume the idea of our correspondents is that we ought to take the side of what they call "practical" middle-class education. We fear our sympathies are in the other direction on the Greek question. The Greek language is the most perfect medium for the expression of human thought of which there is any record, and it is the language of the people who produced the most perfect art of all mankind known to history, and the most perfect if not in every respect the greatest literature. We doubt if any one can fully comprehend the spirit of Greek art who has not known anything of the spirit of Greek language; and the abrogation of the study of Greek would, in our view, leave a most serious and regrettable gap in that "liberal education" which it is so desirable that architects, in common with members of other intellectual professions, should possess.

THE engineering strike in the North threatens to become a very serious affair, as thousands of workmen of other classes will necessarily be thrown out of employment if the engineers remain idle. The cause of the dispute in this case is a disagreement on the subject of overtime, which the men wish to suppress. The employers, on their part, express their disapproval of systematic overtime, and undertake to discountenance it as far as practicable; but desire to be in a position to enforce the working of a limited amount of overtime in case of necessity. The men seem to desire to be allowed to take up the attitude that *they* shall decide whether it is necessary or not, and be absolutely free to refuse to work overtime at all, if they so determine. On Monday last, when the notices expired, there was some hope of a truce between the disputants, and of work being resumed pending conferences between the representatives of the parties affected. Among other proposals, a basis of settlement suggested by Mr. Knight, Secretary of the Boilermakers' and Shipbuilders' Society, was considered, the principle of which appears to be that unavoidable overtime be recognised to a certain extent, limited, however, not by the necessities of trade, but by a fixed standard based upon the size of the works and the number of men employed. There are many things which it is hopeless to attempt to regulate by mathematical rules, the working of overtime (as the Commission on Railway Servants' hours will prove), being certainly one of these; and it appears, to say the least, a great mistake in these days of competition to hamper any industry by cast-iron regulations in regard to such a matter as this. Even Mr. Knight's mediation, however, has so far failed, the men absolutely declining to entertain his proposals. There are probably by this time some 12,000 men on the strike-roll alone, and, as already indicated, there is every prospect of enforced idleness for many others.

MUCH interesting information will be found in Mr. John Thomson's paper on "Water-meters," read before the American Society of Civil Engineers, and published in their *Transactions* of last July. It has always been found difficult to make some people realise the enormous quantity of water that can be wasted by the leaking of defective house-fittings. Through an aperture of only $\frac{1}{8}$ in. diameter, a million gallons will leak away in a year, under a pressure of 60 lbs., which shows how large a percentage of our water supply is actually wasted. Ultimately, no doubt, water will be supplied for domestic purposes, like gas, by meter. The only objection that could be raised to this system is that some people might consider economy more important than cleanliness, and be so sparing in the use of water for ordinary sanitary purposes that diseases and epidemics of various kinds might occur. Mr. Thomson describes most of the more important meters now in general use, and the action of those invented by Siemens and Kennedy are explained. In his opinion, a meter measuring within 5 to 7 per cent. of the truth is sufficiently accurate for practical purposes, and, if such a margin were generally allowed, their cost would be considerably reduced. The author of the paper says a really good meter should possess the following qualities: "It must be capable of standing idle for six months, while the proprietor is absent on a European trip, and start with promptness and accuracy, to full capacity, upon the instant of his return; it must not obstruct the flow, and it must not grind or pulsate, to the annoyance of finely-strung nerves . . . in fine, like the great Apostle, it should be all things to all men."

WE have received from Mr. F. Caws, of Sunderland, a copy of his design, report, and estimate for a new bridge at Hylton. The width of the river Wear, where the bridge crosses over it, is only some 220 ft., although the length of the proposed structure is 800 ft. between the abutments, and the problem is what kind of a bridge is most suitable to carry, at the height of 68 ft. above high water, a carriage roadway 26 ft. wide. Mr. Caws proposes a suspension bridge, having two main spans of 262 ft. centres, and two shore spans of 131 ft. each, and whatever objections may be made to the design from an engineering standpoint, it will be admitted that the structure which he recommends leaves little to be desired on the score of elegance. That engineers very often pay but small regard to the architectural effect of their work is generally allowed. As long as a bridge is scientifically proportioned to do the work for which it is intended, they seem to consider its appearance is of little consequence, although there are fortunately some notable exceptions. The great objection to the suspension principle is the fact that a travelling load, as well as variations of temperature, cause a considerable alteration in the form of the curve in which the cables hang. Some method must be adopted to make such bridges sufficiently stiff to resist partial loading and the effect of a heavy wind pressure. Mr. Caws proposes to overcome this difficulty by suspending cables under the roadway in the form of an arch, upon which there would be a very considerable initial tension. These reversed cables would be held in position by vertical rods, spaced about 5 ft. apart, which also carry the roadway. Mr. Caws thinks by this means the movements caused by irregular loading are very much reduced. That such a method of stiffening the bridge will, to some extent, prevent the upper cables altering their form we admit, but we do not think the system will secure anything like the stiffness that Mr. Caws anticipates. Many years ago, Brunel adopted a similar plan for reducing the effect of partial loading of two suspension bridges in the Isle of Bourbon. The whole subject is very interesting to the bridge engineer, and to calculate the effect of an initial tension of any given amount on the reversed cables is a mathematical problem of considerable complexity. The additional cables, however, with their bracing and anchorages, add so materially to the weight of the structure that it is no longer an economical one, and in the case under consideration the cost would not be less than for an ordinary steel cantilever bridge. Mr. Caws's estimate for the work is 33,000*l.*, and he considers it would take two years to build, but the feature of the design is the use of the reversed cables to which we have referred.

THE recently-reported case of Smith *v.* Gronow settles a point of some practical importance in regard to the relationship of landlord and tenant. A lease contained, among other provisions, a clause for re-entry by the landlord "if the lessee, his executors administrators, or assigns should become bankrupt." The lessee assigned the lease, with the consent of the lessor, and subsequently became bankrupt, whereupon it was contended that the lessor had a right to re-enter. This contention was, however, not upheld by Mr. Justice Wright, and there can be no doubt that this decision is in conformity with law and common-sense. The obvious intention of the clause is to protect the landlord from having an impecunious tenant. It is to protect him from possible loss; he is not obliged to bring an action,—he may re-enter at once. But, on the other hand, if the present tenant be solvent, and the original lessee, who has parted with his interest, become bankrupt, it would reduce the clause to an absurdity and an engine of oppression if the landlord were, in such circumstances, entitled to retake the property. But, sound or unsound, the decision lays down the law on this point.

SANDRINGHAM House, which has just suffered so seriously from fire, was built in 1868-71, in the modernised Elizabethan style, under the superintendence of Mr. Humbert, architect.* The former residence, being the manor-house of West Hall and Wood Hall, was sold, with about 7,000 acres, standing in four or five parishes, to the Prince of Wales in 1861, for, we read, 220,000*l.*, by the Hon. C. Spencer Cowper. The ownership of the property, from the time of the Conquest, is traced in Parkin's "Norfolk" (1808). The former residence, as altered by Mr. C. Spencer Cowper, consisted of twenty-seven rooms, with servants' hall, offices, &c., built of plain brick, and partly stuccoed. The present house was inspected by Sir Eyre M. Shaw, who, it is stated, made a very favourable report upon its construction. The main gates, of wrought iron, by Messrs. Barnard, of Norwich, were presented to the Prince by the County in 1864. A new ball-room has been lately added to the house, designed and decorated under the directions of Mr. R. W. Edis, who, we understand, was at once instructed to inspect the damaged portions of the house with a view to their reparation.

THE Kentish collection in Lambeth Palace Library has just had an important gift, from Mr. E. L. Hussey, of prints and drawings of the late Mr. Hussey, architect, of churches and domestic buildings in the county of Kent. Several interesting details of Leeds Castle, Allington, and other houses are among the sketches, which will be of value to the student of Mediæval work. There are also many ecclesiological items of church furniture and antiquarian fragments, in all about two hundred examples. This collection is now becoming so representative that a printed catalogue is in preparation. Meanwhile, if unknown (as seems to be the case), these prints and drawings are readily accessible, with the other contents of the Library, daily, except Saturday, from 10 a.m. to 4 p.m. Mr. S. W. Kershaw, F.S.A., will no doubt be glad to give further information to visitors about the collection.

THE Baker-street Extension Station is now reduced to a mere skeleton of a shed, but the railway company proceed but slowly with the erection of one in its place. This may be economical, but it is unjust to the great body of passengers who daily flock to this terminus. Another matter which cannot long be delayed is the making of a proper entrance to the station. At present cabs discharge passengers and luggage in the street, not only to the inconvenience of passers-by, but also to the annoyance and delay of the passengers. It is clear that it is possible to make a yard for cabs at the side of the station. As this must be done sooner or later, it is desirable that it should be undertaken at once.

---

* See our columns, Feb. 1, 1868, Nov. 2, 1867, and Dec. 24, 1864.

WHEN travelling along the Queensferry-road on the way to the Forth Bridge, one passes the richly-wooded demesne of Barnton, situated two miles to the west of Edinburgh, and between Corstorphine Hill and the Firth. Barnton Park is to be opened up for the formation of a new residential suburb of Edinburgh. To facilitate building operations, and for the future use of residents, a railway has been commenced; it will be two and three-quarter miles in length, and will commence by a junction with the Leith branch of the Caledonian Railway onwards to the village of Davidson's Mains, then through the Barnton estate to the village of Crammond Brig. There will be two stations on the line, one at Davidson's Mains, at the east end of the projected new suburb, and the other at the terminus at Crammond Brig. The ground extends to nearly 600 acres, and is to be offered at an annual feu duty of 10*l.* per acre, a rate which should attract builders, seeing that ground nearer Edinburgh cannot now be had under 40*l.* per acre. Feuing plans have been prepared showing plots of various proportions upon which about 400 villas could be erected. Provision is made for gasworks, bowling-green, tennis-green, and curling-pond. A regular system of "shuttle-cock" service between Princes-street station and Crammond Brig is to be arranged, so as to bring the new suburb within easy distance of the city.

IN comparison with the International Art Exhibition held at Berlin, the annual *Salon* held at Munich this summer attracted but little notice, although it was by no means an unsuccessful show in itself. Criticisms on this exhibition are now gradually appearing, and among them we find one in our Berlin contemporary, the *Deutsche Bauzeitung*, treating of the architecture exhibited. According to the *Bauzeitung*, only forty-eight exhibits out of the 3,300 in the catalogue were architectural, and these few are contributed for the greater part by the resident members of the profession, but few outsiders from other German cities having sent work, and only four non-German towns (Vienna, Milan, Glasgow, and Edinburgh) being represented. England is not represented, although the last year's gold medal went to this country (Mr. Alfred Waterhouse, R.A.); and Scotland, which could show eleven names last year, only shows three this year, although a "second" gold medal was then gained by Dr. Anderson. The latter, who is one of the three, has this time sent drawings of the Glasgow Terminus Hotel and the Govan Parish Church. The other two exhibitors are Messrs. Burnet, Son, & Campbell, of Glasgow, and Mr. H. J. Blanc, of Edinburgh. It was generally expected that this year's architectural show at Munich would be a good one, owing to the medals given away last year having been gained by foreigners. This has, however, by no means been the case, owing to the Berlin Exhibition and the Munich one running parallel, and the former being considered more important than the latter, which was being held merely as an opposition show, on account of the differences between the Berlin and the Munich artists.

IN the exhibition of the Institute of Painters in Oil-Colours it is to be noted that the President has taken a new departure. Few would at first sight recognise Sir J. Linton's hand in "The White Rabbit" (358), a small painting of a character of subject and composition reminding one of the Dutch school, though different enough in texture. The picture has hardly any subject; it is an untidy littered corner outside a dilapidated house, where an unkempt girl sits, relieved against dark shadow, watching a rabbit, which makes a bright spot in the picture. It is painted in a very low key, and, if it is not very original in composition, it is certainly original in tone and general handling, though we cannot call it an interesting work. The picture called "Jessica" (244) has no sort of right to the title, except the mere fact that it is a study of the head of a Jewess, who is neither young nor beautiful. It is too absurd that painters should thus lay hold of characters in fiction merely to give a name to their works, without the slightest attempt at realising the character. A head giving a genuine study of Jessica as we might imagine her to have been, would be of some intellectual interest, of which there is none in this picture. Perhaps the cleverest work among the figure subjects of the exhibition is Mr. Dadd's "Thirdly, and Lastly" (190). We will not say that Mr. Dadd equals the President as a colourist or as an artistic executant; but in this painting there is real expression of human character, an element in which Sir James Linton's rich and harmonious studies of colour are wofully deficient. In figure pictures the present exhibition is not strong, and there are many very bad and poor things—more than usual. Among the minority of interesting pictures may be mentioned Mr. Collier's "Pythia" (97) seated on a high brass tripod, whose claw feet seem half to belong to her figure and impart a sinister element to the picture; Mr. Kennington's "Mischief" (108), studies of three girls' heads grouped together; Mr. White's "Starting the Race" (118) a very hard crude picture in tone and colour, but with plenty of spirit in the figures. Among landscapes is one by Mr. Wimperis, "Stormy Weather on a Yorkshire Moor" (54), rather like water-colour done into oil; Mr. East's pleasant but rather mannered "Dewy Morning" (147); Mr. Hope M'Lachlan's "At Daybreak" (378) and "Wind on the Hill" (475), powerful, but too obviously intended to produce that impression; Mr. C. W. Wyllie's "In the Golden Lighting of the Sunken Sun" (418), a beautiful work; and Mr. Jas. Orrock's "Sandpits in Surrey" (555), like Mr. Wimperis's work, looking rather as if it ought to have been in water-colour.

THE series of drawings by Mr. Logsdail, in illustration of "The Riviera," now on view at the Gallery of the Fine Art Society in New Bond-street, rather confirms our previous idea, that Mr. Logsdail's special faculty lies in painting town scenes in which buildings are predominant. The purely landscape portions of the work are crude in colour and confused in execution. The street and town scenes, such as "A Corner of the Walls of San Remo" (2), "A Wayside Shrine" (5), "A Street in the Old Town, San Remo" (37), "The Cloisters, St. Honorat, Cannes" (31), and others of the same class, are far superior, though we have seen better things of the kind than these. No. 47, "The Duomo, San Remo," illustrates in itself the artist's strength and weakness; the church in the background is very well treated, the foreground garden (?) is a jumble out of which it is difficult to make anything. On the whole, we fear the collection will hardly tend to show that Mr. Logsdail has an adequate claim to the honour of a "one-man exhibition."

WE cannot understand the continued existence of the Society of British Artists, unless it is to find an exhibition for those who cannot get their works exhibited elsewhere. There are always, no doubt, a few good things, but they seem to become fewer and fewer. Among these are Mr. Sheridan Knowles's portraits of young ladies (57 and 449), which are fine in style and colour, and the studies of animals by Mr. Robert Morley, the Secretary (75, 108), who sets an example to other members of finishing his pictures, an example little followed. Most of the works seem designed to afford a hint that the artist might have made a picture if he had had more time to give to it. Among the finished works is also Mr. Morgan's "Old Cronies" (283), Miss Beatrice Meyer's "Mrs. Gunning and her Daughters Visiting Peg Woffington" (163), Mr. Pickering's "A Pine Wood" (352), Mr. Hardy's "Murky Tyne" (391), &c. Mr. E. Ellis's large picture "The Kingdom of the Sun" (363), a sea piece, is meant to be very powerful, but its constituent portions, we humbly think, do not resemble severally either sea, or clouds, or sunlight. Among some architectural subjects are Mr. Harding Smith's interior of "San Zeno Maggiore, Verona" (235), and Mr. Wyke Bayliss's interior of "Westminster Abbey" (321), in the choir ambulatory; there is a fine colour effect in this, but the perspective is at fault in detail (*e.g.* the mouldings encircling the piers and shafts). The amount of utterly commonplace work on the walls is painful to behold, and we cannot see what good purpose is served by keeping up an exhibition where the general average of work is so poor.

THE collection of drawings of "English Pastoral landscape" by Mr. Thorne Waite, now on view at Messrs. Dowdeswell's, includes many charming sketches, though perhaps hardly any that represent his best powers, unless it be "Changing Pasture, Beer, Devon" (60). The best aspect of Mr. Thorne Waite's art seems rather dependent on finish, and is not so discernible in a sketch form.

A RECENT article in our columns on "Vulgarities of English Jewellery Design" seems to have attracted a good deal of attention, from the number of quotations, criticisms, and letters in regard to it which have reached us. Some of the letters have expressed the most cordial gratitude to us for thus "showing up" the taste of the average jeweller and the average public in such matters;* most of the newspaper comments express sympathy, and the trade organs of the goldsmiths and jewellers, one or two of which have been considerately forwarded to us, seem to be literally choking with anger, and relieve their feelings by contemptuous remarks on the presumption of a "trade paper for builders" pretending to know anything of jewellery design. Probably these good people know perfectly well that they are printing a falsehood, and that this is an architectural journal dealing with artistic as well as with constructive subjects; but we observed a remark in a journal of a higher class—the *St. James's Gazette*—to the effect that an architectural journal was "not a quarter in which one would expect to find such a subject treated." Now that is just the mistake of the *St. James's Gazette*, and of some other papers and persons. The art of designing jewellery and silversmiths' work is the same art as architectural detail and ornament, carried out on a minute scale and in more precious materials. He who understands the one understands the other, and as a matter of fact some of the finest designers of this class of work have been architects, alike in the Mediæval, the Renaissance, and the modern period.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

THE PRESIDENT'S ADDRESS.

THE first ordinary general meeting of this Institute was held on Monday evening last at No. 9, Conduit-street, when

Mr. J. Macvicar Anderson, President, delivered the opening address of the session, as follows:—

Gentlemen and Colleagues,—In opening a new Session on this the fifty-seventh year of the foundation of the Royal Institute of British Architects, permit me to express the hope that it will be the occasion of drawing us all more closely together in promoting the interests of architecture, and that our meetings may be the means of stimulating enthusiasm and energy, and of imparting profit and instruction to the younger as well as the older members; for we must never forget that, irrespective of age, we

* One of these congratulatory letters was from a well-known London jeweller, whose remarks showed that he knew more than many others of his craft about artistic design. But alas! we perceive that this gentleman is no better in practice than the others; and along with really artistic necklaces, &c., he puts forth for sale the "merry-thought" brooch, and many of the other things we stigmatised. Now a man who sells what he knows is bad art has no claim to call himself an artist: he is only a tradesman like the rest. His better culture and knowledge only make his fault the greater.

all are, or ought to be, students to the last. If, however, we are to profit by our meetings, it is obvious that we must attend them. Judged by their habitual absence, some members seem to look on this as "a custom more honoured in the breach than the observance"; hence I venture to urge all to make some effort, occasionally even to incur some sacrifice, in order to attend the meetings of the Institute, and contribute from individual stores of knowledge to their interest and general usefulness. I could well wish that some one better qualified than myself were to preside over your deliberations. Conscious of many deficiencies which your kindness passed over when you placed me in this chair, I am none the less sensible of the confidence reposed in me, and am resolved to do my best to justify it by grudging neither time nor trouble in the endeavour to promote the prosperity of the Institute, and the best interests of the profession.

Of the many subjects of interest to which I might direct your attention, there is, perhaps, none which more directly affects the profession, through the medium of this Institute, than that of Examination. I deem it, therefore, superfluous to offer any apology for proposing to occupy some portion of your time in a review, —retrospective and prospective,—of this subject; and should I appear in so doing partially to tread once more a well-beaten track, I venture to hope that the importance of the subject will justify me in craving your indulgence and attention. I am led to enter on this inquiry because the attention of the Institute will shortly have to be directed to the propriety or otherwise of establishing an examination for admission to the class of Fellows, and, if I refer particularly to this now, it is not certainly with the intention of forestalling the deliberate judgment of the Council, by whom it has yet to be considered, and whom I have in no way consulted, collectively or individually, but because I think it desirable that the subject should be brought under your notice, with the view of being maturely thought over, prior to any decision being arrived at.

I may say at the outset that I am, of course, aware that there are some within the Institute as well as outside of it who are opposed to the policy of Examination, and who, considering it prejudicial to the welfare and highest interests of the profession, would deprecate its extension. To such, especially those who are members, I may reasonably urge that the day has gone by for raising objection or inaugurating opposition. No one can allege that the policy was not maturely considered prior to its adoption in 1882, and its subsequent confirmation by Royal Charter in 1887, and I apprehend that any who now find themselves honestly opposed to it should feel loyally bound by the decision of the majority; and, if on principle they are unable to take an active part in the scheme of Examination, they should at least avoid any action which may tend to injure or to minimise the influence of the Institute in the honest endeavour to raise the standard of knowledge and efficiency, and so to promote the highest interests and the credit of the profession.

But what is the argument on which this opposition to Examination is based? You will find it embodied in a memorial which was presented to the Council, and in a letter which the memorialists published in the *Times* last March, under the title of "Architecture: an Art or a Profession?"—words which appear to me to suggest under an attractive form an entirely false issue, and one which in its essence is misleading. To declare that architecture is an art is to repeat a truism; it is not only an art but a fine art, to which in some respect the sister fine arts of painting and sculpture are handmaidens in a sense which cannot be said of architecture in relation to either of them. I yield to none in my appreciation of the nobility of our calling as the embodiment of the highest form of art. Painting and sculpture are luxuries that can be indulged in only by the rich, but architecture is a necessity felt by all, the poor no less than the wealthy. A civilised community must have houses to live in, schools and colleges to learn in, offices to work in, hospitals to be sick and to be visited in, houses of parliament to legislate in, palaces of justice to enforce law in, museums and galleries to exhibit objects of art and science in, and, though last not least, cathedrals and churches to worship God in; and what nobler or more elevating occupation can be conceived than to design with fitness and clothe with beauty those permanent necessities of every-day life, so that each in its turn may contribute to the convenience and the pleasure of mankind? But architecture is more than all this. It is an art *and* a profession. To ask whether it is an art *or* a profession is not only, in my judgment, to put the subject in an incomplete and misleading form, but to endeavour to divorce two things which are indissoluble. Why, the unique characteristic of our calling is that it combines such different qualifications,—artistic taste, scientific knowledge, business proficiency! We have no claim to be architects in the true and full sense of the word unless we are artists, able so to dispose and to clothe the materials with which we have to deal as to produce beauty of form and proportion. But we must also be scientists, so familiar with the strength and properties of materials as to combine them in sound construction; and we must, moreover, be men of business, so conversant with affairs as to be able to protect the pecuniary trusts which are committed to us. Of what good to society would be the most graceful design in architecture if it were so devoid of constructive merit as to collapse? Or, conversely, what claim has the most perfect construction to architectural merit unless clothed with beauty? Tho body politic of architecture is composed of parts, each one of which is essential to the unity of the whole, and without any one of which it would be incomplete and useless to society. There are those amongst us whose proclivities and aspirations are specially artistic; there are those whose genius is constructive; there are those who *par excellence* are men of business. The ideal architect is the man in whom these qualities are united—who is an artist, a constructor, and a man of business. It is given to few to excel in all, though there are many who, possessing a general knowledge of each, are proficients in one or the other. And is one who is distinguished by artistic taste to regard with indifference or a species of contempt others who may be less artists and more scientists? Or is one whose genius is construction to look askance at others who are more purely artists? As well might the foot say to the hand, or the eye to the ear, "I have no need of thee," as if the one or the other were the body. No, architecture is not merely an art, it is not merely a science, it is not merely a profession; it is the combination in one of the artist, the constructor, and the man of business, and any who claim that it is one only, to the detriment of the others, detract from the nobility as well as from the unique character of their calling. They vainly strive to disintegrate things which are inseparable, and which must go hand in hand. As well seek to sever cause from effect; as well assert that root and stem have no part in producing the rich foliage or the delicate flowers on which the eyes of man feast with delight.

While thus advocating a spirit of catholicity and tolerance, it is evident that the association of those whose feelings and aspirations are in unison is not only natural, but within proper limits productive of benefit, and is only to be regretted when through the undue preponderance of party feeling it ends in schism. There should be no room for schism here, yet I know of at least one member who retired from the Institute because he thought it did not sufficiently represent the artistic element in architecture; and I know of others who, for this or cognate reasons, decline to become members. I have every sympathy with the feeling that the Institute should be an artistic guild, but I demur to the action of those to whom I refer, for I maintain that the Institute does represent the artistic side of the profession, and to leave it, or to refuse to join it, on such grounds as I have indicated, is but a poor compliment to those of our number who are admittedly among the first artists of the day. Moreover, such action seems to me to spring from a narrow and schismatic view, and to be tinged with extraordinary inconsistency, for if it were the case, which I do not admit, that the Institute is insufficiently representative of art, surely the proper course for those whose sympathies are specially artistic, is to strengthen the artistic element by their presence, and not to weaken it by their absence. With regard to all such, I feel sure that I express the pervading feeling when I say that we deplore their absence, and would willingly extend to them a friendly and cordial greeting as fellow-workers in our noble art, for the Institute does not claim to be the home of any school or party, but to represent, in its widest and most elastic sense, the profession of architecture.

But, to pass from the general to the particular, let me refer to the argument embodied in the memorial to which I have referred. It is said that, "while it is possible to examine students in construction and matters of sanitation, their artistic qualifications, which really make the architect, cannot be brought to the test of examination;" consequently, that the attempt to test the knowledge of art by examination is delusive, and calculated to militate against the interests of architecture as a fine art.

Is this so? Art has a history, which there is no difficulty in teaching: delineating its varied forms and combinations in different ages, and tracing such combinations to their sources, the usages, peculiarities, and requirements of succeeding generations; and is it not of the highest benefit to the artist, in developing his mental faculties and aspirations, to become thus familiar with the history of his art? But what of the theory and practice of art? Are not these systematically taught in architects' offices, in the classes and schools of the Royal Academy in this country, the École des Beaux-Arts and other schools in France, in many kindred institutions on the Continent, and in the schools of art and of design throughout this country which have tended so greatly of late years to improve the designs of our textile fabrics?

If, then, the history, the theory, and the practice of art are thus imparted by teaching, with what truth can it be asserted that to test such acquired knowledge by examination is detrimental to its highest interests? No one is so foolish as to contend that any one ever has been, or ever will be, made an artist by examination; but no more will any one pretend that an artist ever has been, or ever will be, created by teaching; for the spirituality of art, so to speak, is inborn, and cannot be imparted. But much that is valuable, if not essential, to the career of an artist, can be, and is, taught, and to test knowledge thus attained cannot possibly do any harm, while, on the other hand, it may be, and I believe is, productive of nothing but good to the student. It is one thing to acquire knowledge in a general way by study, it is another thing to test the application of such knowledge, and to root it in the memory, by examination. And is not this test the experience of all from the cradle to the grave? In childhood, as at school and college, is not the acquisition of all knowledge tested by examination? Does not the entrance to most professions and callings consist of some such test? Is not the experience of life a continuing examination? Society consists of two classes—employers and employed; if the latter are found deficient in the knowledge they profess, they will soon cease to be employed. Do not artists themselves habitually subject themselves to examination by submitting their works at the Royal Academy and elsewhere to the test of public approval? Do not our own so-called art members voluntarily accept the same principle when they engage in competitions, and submit their knowledge of the art they profess to the test of examination by promoters and assessors? There is not a man living, be he artist or not, who, in some form or other, does not undergo the test of examination at the bar of public opinion. Can it then be that the single exception to this universal experience should be found in the year of grace 1891 at No. 9, Conduit-street? and can our modest, though honest, endeavour to raise the status of our members and the credit of the profession be truly described as detrimental to the highest interests of the art which we profess and love?

You are all aware that the Charter enacted in 1887 not merely that "every person desiring to be admitted an Associate shall be required to pass or to have passed such Examination or Examinations as may be directed by the Royal Institute," but also that "after the expiration of five years from the date of this Our Charter, the Royal Institute shall have power to declare that every person desiring to be admitted a Fellow shall be required to have passed such Examination or Examinations as may be directed by the Royal Institute." Thus, while the Qualifying Examination for Associates was made compulsory, the institution of a similar examination for Fellows is permissive only. It is significant that a date should have been specified on and after which a declaration might be made relating to an Examination for Fellows, showing that the possibility,—if no more,—of instituting such an examination was at that time contemplated by the Institute. The specified period on and after which it is permissible to make a declaration on the subject will expire

next March, and it seems to me, therefore, by no means premature to invite your attention to the matter now. There are, of course, several methods of dealing with the subject; for example, the powers granted by the Charter being permissive, the Institute may elect to take no action, or to declare that it is expedient to defer taking action, or to declare that on and after a specified date no one,—except under certain conditions,—shall be admitted a Fellow who has not passed such examination as the Institute may have established. In order to assist us in forming a correct judgment, it is pertinent to inquire what has been the result of the compulsory Examination for Associates established in 1882. For the purpose of comparison, it will be only fair to exclude the two years immediately preceding that date, during which an exceptional influx of Associates occurred, from reasons into which we need not inquire too curiously. I propose, therefore, to take the eight years from 1872 to 1880, and to compare them with the eight corresponding years in the succeeding decade, viz., 1882 to 1890. During the former period, the number of Associates who were elected was 246, or an average of thirty-one per annum; while in the latter period the number of Associates who were elected was 328, or an average of forty-one per annum. It is to be observed that this latter average would have been still larger had the whole of the 533 candidates who applied to be examined, been passed; or had the whole 366 who were passed been elected. It is, moreover, worthy of note that since the year 1887, when the compulsory Examination for Associates was confirmed by Royal Charter, a remarkable increase in the number of applicants has occurred, for in the four succeeding sessions there were no fewer than 375 candidates, of whom 262 were elected, being an average of sixty-five per annum. It thus appears that while prior to the institution of the compulsory examination for Associates in 1882, the average of annual elections was only thirty-one, since that date the annual average has been forty-one; and further, that since the confirmation of the examination by Royal Charter, the annual average has been sixty-five. These are facts which cannot be controverted, the significance of which is remarkable. Bearing in mind that the abnormal number of Associates who were admitted in the two years immediately preceding the establishment of the compulsory Examination must have reacted prejudicially against the number of candidates for some years thereafter, the figures I have quoted can only be regarded with extreme gratification, for they afford irrefragable evidence that the compulsory Examination has not exercised a deterrent effect, so far as Associates are concerned, but, on the contrary, has actually formed an incentive and an inducement to join the Institute. This result may surprise some, but it is really no more than might have been anticipated, for it is obvious that membership acquired by means of the test of examination becomes a much more valuable and valued possession than if it had been acquired only by means of a money payment.

The result, therefore, of nine years' experience of the compulsory Examination for Associates is that the public have the guarantee that there are at least 376 of the rising generation of architects who have proved by this test that they possess such technical knowledge of architecture as has justified the Institute in enrolling them as Associates in pursuance of its chartered rights. This is satisfactory, but it is still more so to reflect that in course of time, when the present generation shall have passed away, there will be a similar guarantee in respect to every Associate of the Institute. Were our numbers to remain as they now are, that would apply to 800 Associates, but the figures I have quoted prove that the class of Associates is increasing by rapid strides, and I entertain no shadow of a doubt that by the time I refer to the number, if not doubled, will be vastly more than it now is.

But this is not all. It is well known that, unless with a definite object in view, study is apt to be desultory, and is often neglected. In order to pass this examinatian, a systematic course of study has necessarily to be engaged in, a vast amount of useful knowledge is acquired, and who will say that these 376 Associates of the Institute are not better men and will not be better architects from the enforced study and the acquired knowledge that they owe to the compulsory Examination? Now, I ask, seeing that examination has resulted in the addition of so large a number of qualified Associates to the list of our members, why should not a similar result attend the extension of the same policy to the class of Fellows? The question is not so much, Why should Fellows be subjected, before election, to such a qualifying test, as Why should they be excluded from advantages which the other class of members has derived from it? Surely there is nothing in the relative constitution of the two classes, which can render it undesirable that a treatment eminently successful and beneficial in the case of the one, should not be applied to the case of the other. The Institute deliberately adopted in 1882 the policy of Examination as the qualification for membership as Associates, and we shall be no more than consistent if in 1892 we take advantage of the permissive powers of the Charter, and extend the same policy for membership as Fellows. Not to do so indeed would seem to imply one of two things,—either unaccountable inconsistency; or the conviction that the policy has failed as regards Associates,—an assumption which would be untenable and absurd in view of the facts and figures which I have placed before you.

As the result of a careful review of the whole subject, I feel no hesitation in expressing the decided opinion, that, in pursuance of the permissive powers of the Charter, the Institute should next year declare that on and after a date to be specified, "every person desiring to be admitted a Fellow shall be required to have passed such Examination or Examinations as may be directed by the Royal Institute."

In the event, however, of this policy being adopted, it should be understood that the words of the Charter, "But in special cases the Council shall have power to dispense with such Examination or Examinations," should be liberally interpreted for a period of years, for the obvious reason that there are men now in the profession enjoying extensive practice, to whom, should they propose to join the Institute, it would be manifestly absurd to apply the test of examination.

That there are difficulties which will have to be anxiously and carefully considered, I fully realise; but to say that there are difficulties to face, is to tell us only what is common to all human enterprise: if regarded with timidity, they become rapidly exaggerated,—if manfully wrestled with, they dissolve like the hillside mist before the rising sun. To go no further, there rises on the threshold the question of Examiners. Perhaps all are not aware of the arduous nature of the labours of the Board of Examiners, labours which are entirely gratuitous, which incur a grave sacrifice of time,—in other words, money,—and involve a great deal of consideration and study. For these labours, freely contributed during the last nine years by the Chairman and Members of the Board of Examiners in carrying out and developing the examinations for Associates, the Institute owes a deep debt of gratitude which no mere words can adequately express. For some time it has been to me apparent that it is too much to expect a continuance of such gratuitous labours, and if, in addition to the existing examinations, another should be instituted, the question of some form of recognition would have to be considered. This, however, is not a difficulty which can or ought to be regarded as insuperable; for although our funds may at present be somewhat straitened from causes to which I may refer by and by, it is clear that means must be provided for the efficient support of an organisation which I look on as vital to the best interests of the Institute.

I have referred to the subject of Examination at some length, but I hope in temperate and logical terms. Convinced of the accuracy of the views I have expressed, may I commend them to the favourable attention and impartial reflection of those whose judgment may not hitherto have approved the policy of examination? Should anyone be thus led to reconsider a position which may possibly have been taken up with less serious consideration than the subject deserved, need I say that it would be to me the source of unmixed satisfaction, being heartily anxious that we all, as members of this Institute,—whatever may be our individul proclivities,—should not permit them to disturb the harmony of the body politic, still less to militate against its welfare, but should unite with cordial goodwill in endeavouring to promote its usefulness, and to extend its influence both in relation to our own members and to the public?

Before leaving the subject of examination, let me briefly refer to what some seem to look on as its necessary goal,—Registration. The inevitable evils which must accompany the adoption of any scheme of legal registration are admitted, even by its most ardent advocates. The preliminary question, therefore, which rises on the threshold of any consideration of the subject is, whether these evils are likely to be outweighed by counterbalancing advantages? It is no doubt regrettable that anyone, whether qualified or not, should be at liberty to engrave "Architect" on his door-plate; but it would be vastly worse, and only justifiable under the pressure of the gravest necessity, to legally register as a qualified architect every carpenter, auctioneer, or undertaker who now has the effrontery to call himself so. And after all is the existing evil so great as it is made out to be? It may be thought a little humiliating to find tradesmen assuming to be qualified practitioners in a learned profession, but the pretension is so absurd as to secure its own defeat. There are a sufficient number of educated and qualified architects; if the public have not such intelligence and regard to their own interests, as to discriminate now between them and the persons I have referred to, no Act of Parliament will endow them with it, any more than it will prevent quacks from finding means to impose on them. The Architects' Registration Bills which in recent years have been promoted in the House of Commons have failed in providing machinery that would remedy this evil. The mere enactment that no one could under penalties use the word "Architect" unless legally registered would not meet the difficulty. There are numerous and obvious loopholes for the evasion of such legislation. I object to the proposed Registration Bill, (1) because it is not called for; an essential preliminary to such legislation being that it is demanded by the profession, instead of being promoted by a few individuals who can in no sense be said to represent it; and (2) because it would inevitably fail in effecting the object set forth in the preamble. So far, therefore, as I am concerned, without doubting the *bona fides* of the promoters, I shall continue to oppose by any influence I possess such crude and uncalled-for attempts at legislation, which have only tended to confirm my original conviction that the remedy would be worse than the disease. I indulge in the prospect, the fulfilment of which I may not live to see, when every member of the Institute, whether Fellow or Associate, will be a qualified architect in the sense of having passed an examination instituted by his brethren, as the necessary qualification for membership; for this, with the continual increase of our members which every succeeding year will see, is in my judgment the true solution of registration, and would sufficiently meet any difficulty, such as the public is now said to experience, in discriminating between qualified and unqualified practitioners. The affixes F.R.I.B.A. and A.R.I.B.A. would in such circumstances, and in the eyes of the public, mean much more than they now do, for they could then only be used by those who had passed the test of a qualifying examination. Reference to these letters tempts me to remark incidently that it is a pity some of our members appear to attach comparatively but little value to them. The initials F.S.A. must, I suppose, be assumed to have some magic influence with the public which our own F.R.I.B.A. do not possess, for they are always placed first. Why should this be? Can it be said that to be a Fellow of the Society of Antiquaries is a better qualification for an architect than to be Fellow of the Royal Institute of British Architects? This anomaly, however, time will remedy. When my confident anticipation is realised some years hence, members of the Institute will be proud of their proper distinguishing letters, and will take care to relegate them to no second place, because they will be acknowledged and accepted by the public as the evidence of professional qualifications which no other letters can convey.

In a foregoing paragraph I have incidentally referred to the state of our finances being less satisfactory than could be wished. We have perhaps enough to pay our way, but not much more, and that is not a budget which satisfies my notions of sound finance. I should like to see a much larger margin than has ever existed between income and expenditure, and to provide such a margin is the goal to which we should seriously strive to attain; for although there is perhaps no particular object in amass-

ing a large capital, it would certainly be desirable to add to our present vested funds, and thereby provide for future extension of premises, or for the acquisition of others more suited to our continual expansion; and it would be no less desirable to be able to set apart a yearly sum for the remuneration of Examiners, and to contribute towards the encouragement of professional education in such forms as may from time to time appear best. I am far from thinking that there are not good reasons for the steady increase of our expenditure. The position which the Institute has of late years assumed in taking a more aggressive attitude in respect to public questions of architectural interest; the organisation of the Standing Committees; the machinery of the Scheme of Examination; the opposition to some and the support of other Bills in Parliament; the extension of our relations to Allied and Colonial Societies, are all causes, and legitimate causes, of increased expenditure which has to be met out of income. Each of these causes contributes to the necessity of an increased staff, in order to carry on efficiently the work of the Institute. But, while granting all this, I maintain that we are not justified in living up to our income, but that we should, on the contrary, live well within it. How is this to be accomplished? Obviously by adopting one of two possible alternatives. Either we must reduce expenditure, or we must increase income. In respect to the former, I do not say it is impossible; but, after careful consideration, and guided by many years' experience of the working of the Institute, I do say that I can discover no considerable item of expenditure that can be saved without detriment to our welfare and influence. There remains the other alternative,—the expansion of income,—in which, in my judgment, is to be found the true solution. But is this practicable? By way of reply, let me put another question, which I desire to address directly to each one of our members. What has each one of us done, individually, personally, to increase our membership? How many of us have been the means of inducing ten others to join the Institute? How many five? How many one? You are all familiar with the parable of the man who called his friends and neighbours to rejoice with him because he had found what he valued. In the exercise of the same spirit, surely it becomes us, if we value membership at all, to use our personal influence with professional friends and neighbours, by pointing out the advantages of belonging to a strong representative society, the essence of whose constitution is the promotion of the best interests of architecture. Now, it must be assumed that the Fellows and Associates of this Institute do value membership, or they would not be where they are. Why, then, should we continue selfishly to enjoy privileges, when, by exercising a more liberal spirit, others, by a very slight effort on our part, might be led to participate in them? Let each one of us evince somewhat less apathy in this matter. There are now 1,366 professional members. Should I be so happy as to influence, say one-fifth only in the direction I desire, think what the result would be,—such a substantial addition to our income, as would provide at once the margin I so strongly desire to see created. Let me press these suggestions on your notice, with the view of giving to them practical effect. But let no one misunderstand me. I am not pleading, *ad misericordiam*, as if our position were a weak one. It is not so,—far from it; rather is it a position of growing influence. I desire, by awaking members to a sense of their responsibility, to see it strengthened financially, in order that we may enlarge the sphere of our operations and of our usefulness. There is probably no more legitimate or more hopeful method of attaining this end than by means of the societies in Scotland, Ireland, and the provinces, which the Institute, by virtue of the powers of the Charter, has admitted to alliance. We do not claim merely to represent metropolitan, but British architects; hence we now have twelve Allied Societies, and at our first Business Meeting it will be my privilege to propose that the Dundee Institute of Architecture, Science, and Art be admitted to alliance, thus increasing the number to thirteen. Should there be any amongst us who are superstitious, and who consequently look on this as an unlucky number, I think I may venture to assure them that their scruples will shortly be removed by further additions. By means of such alliances we are kept in touch with representatives of local opinion and practice at the principal centres of life in the kingdom. The interest of all is identical, and cannot fail to be promoted by united action. I desire to see the Institute strengthened by the admission to its ranks of many more members of our Allied Societies, by whom, I do not hesitate to declare, the advantages of membership will year by year be increasingly appreciated, in proportion as year by year they become more fully realised by the public. Moreover, when the Institute is called upon to advise a Department of State, it cannot but add emphasis to our counsel when, as in a recent instance, such counsel is confirmed by the cordial support of our Allied Societies. Let us strive to draw closer and closer the cords which bind us together.

In connexion with the subject of membership, I may briefly refer to a privilege which appears to have been inadequately appreciated on some recent occasions. Whether the principle of the ballot, as applied to such elections as ours, is expedient or otherwise, may be matter of opinion; it is significant that both the Institution of Civil Engineers and the Surveyors' Institution have abandoned it; there are those who look on it as an unmanly subterfuge for avoiding an honest expression of opinion; while, again, others consider it a convenient method of recording their vote without incurring personalities which might otherwise follow. We need not pause at present to discuss which view is best, for we have the ballot, a trust acquired by membership which should be held sacred by all possessing it, and which should not, in any circumstances, be used to the injury of innocent persons. The question of the ballot has, as you are aware, been raised in this room, and has been referred by the Institute to the Council, who have appointed a carefully-selected Committee,—composed not exclusively of their own number,—to consider the whole subject and report thereon. Pending such consideration and report, I refrain from expressing an opinion, but will indulge the hope that in the meantime the reference to the subject which I have felt it right to make may be accepted in the spirit in which it is offered.

To those whose professional practice lies within the metropolitan area, much inconvenience has of late years been experienced by the complications resulting from the numerous statutory additions which have been made at different times to the Metropolitan Building Act of 1855. It is satisfactory, therefore, to know that the Local Government Board propose to introduce, during the ensuing session of Parliament, a "London Building Law (Consolidation) Bill," the object of which is stated to be "to consolidate the Metropolitan Building Acts" and "certain sections of the London Council (General Powers) Act 1890." This will prove an undoubted convenience and advantage, so far as it goes. But it will only deal with one half, and that the least serious half, of the question. The Metropolitan Building Acts are admitted, by all who have occasion to refer to them, to require not only consolidation, but amendment. Some clauses, if not obsolete, have been so successfully evaded as to have become practically so; some, if rigidly enforced, inflict hardship, while, on the other hand, they contain no enactment respecting such subjects as foundations, drainage, and sanitation, which vitally affect the health and welfare of the community. Hence when, in August, the President of the Local Government Board courteously forwarded a copy of the proposed Consolidation Bill, and invited suggestions thereon, I did not hesitate, after consultation with Mr. Cates and the officers of the Practice Standing Committee, to represent the importance, or rather the necessity, of accompanying this measure by an Amendment Bill, inasmuch as only by means of consolidation and amendment can the Building Acts meet the requirements of the present day. The Practice Standing Committee, during the last two years, has been engaged in the serious task, involving great labour and research, of preparing a complete draft of a suggested Amendment Bill; and this, when it has been approved by the Council, will in due course be forwarded to the President of the Local Government Board. Let us hope that the issue may be the introduction in due time of a Consolidated and Amended Building Act, such as the necessities of the time require.

A review of the architectural events of the year wold be incomplete without some reference to the new departure of the Architectural Association embodied in their curriculum. The subject being one of considerable importance, not merely to the Association, but to the profession, we were glad to afford every facility for its full discussion in this room towards the close of last session. The able and lucid exposition then given by the President, Mr. Baggallay, and the exhaustive discussion which ensued, render it needless to attempt any delineation of the scheme now, and I refer to it only that I may embrace the opportunity of heartily commending it to the sympathy and support of members of the profession. Fully realising the difficulties with which they might have to contend, but undaunted by fear of failure, the Association deliberately faced them; and, although they could not, of course, command success, they have certainly deserved it, by the judgment and determination they have displayed, and it is gratifying to learn that already a fair and encouraging measure of success has attended the launching of their new curriculum.

One feature only in the scheme I regret, and that is, the necessity which the Association have felt for finding other and more commodious premises, in order to provide facilities for the development of their curriculum. I should have rejoiced if, by our acquiring the whole of the property, it had been possible for the Association to have been domiciled here. I indulge the hope, however, that at some future day the two old-established Architectural Societies of London, the elder and the younger, may be completely housed under one roof, as they should be.

Architectural students of the present day are certainly to be congratulated on the educational advantages they possess; in addition to the carefully prepared and exhaustive curriculum of the Architectural Association, to which I have just referred, there are the lectures and classes of Professor Roger Smith at University College, in connexion with which, owing to the liberality of the Carpenters' Company, there has been a new departure this winter, in the establishment of an afternoon class for architectural and structural drawing, and an evening class for building construction and drawing; there are again the lectures and classes at King's College, the details of which were so fully explained in this room by Professor Banister Fletcher on a recent occasion that I need do no more than refer to them; and there are the lectures of Professor Aitchison and the classes of Mr. Phené Spiers at the Royal Academy. It would certainly be strange, therefore, if architectural students were not good draughtsmen, and learned in the various subjects appertaining to their art, for it cannot be said that ample opportunities for study, or able professors and teachers, are not at their command. I venture to express the hope that architects who have pupils in their offices will, in the exercise of a liberal spirit, afford them every possible facility for deriving the full benefit of the exceptional educational advantages to which I have referred.

Among the numerous architectural competitions of the past year, there is one which, alike from the magnitude of the work and from the manner in which the competition was inaugurated, deserves more than a mere passing notice. I refer to the limited competition for the completion of the South Kensington Museum.

We may differ in our ideas as to the system of competitions. There are those who at the outset of their career look to them as one of the few opportunities for making themselves known, and regard them consequently with favour. There are those who, having made their mark, in the first instance, by winning the prize in a competition for a public work, naturally are not prepared to condemn the system, even though in principle it may not entirely meet with their approval. There are, again, those who, like myself, have never engaged in competitions, because they believe them to be very nearly an unmixed evil, and not to be conducive to the real welfare of the profession. The motive which should inspire all design is the attainment of Beauty and Fitness, but, as human nature is constituted, the motive that is apt to be supreme in competitive design is the production of a result not necessarily the best, but, in any case, the one which is likely to find favour with the judges. This means working for a low, not a high standard. An artist should seek to attain to Perfection,—if he does not, he will never come near it,—and to set up any other, or less worthy standard, is to part with the inspiration which alone leads to excellence in art, or, indeed, in any intellectual pursuit.

[*Continued on page* 350.

Illustrations.

LINCOLN CATHEDRAL.*

IF the Cathedrals of England were to "go forth" like the trees in Jotham's parable† to choose them a queen, the choice would be likely to fall on Lincoln. York may excel it in the bulk and stately magnificence that becomes the kingly dignity; but in queenly beauty, as she calmly reposes on her "sovereign hill," and looks abroad over the wide plain below, Lincoln has no rival among English Minsters. The outline, as seen from a distance standing out against the sky, is almost perfect. The three noble towers crowning the well-balanced mass, the high-pitched roof, lofty gables, and general harmony of design, form a whole which delights the eye at the first view, and which, the better it is known and the more closely it is studied, proves itself more worthy of admiration. Nor is there any cathedral which, in the purity of its design, the symmetry of its parts, and the excellence of its details, both in mouldings and carvings, presents a more delightful and instructive school for the architectural student who desires to make himself master of the beginnings and early development of English Gothic. As Sir G. G. Scott has said, the student may here obtain "an accurate knowledge of the whole course of thirteenth-century architecture, exemplified by one of the finest series of works this or any other country can boast."‡ The whole building, with some partial exceptions, such as the western towers and the upper story of the central tower, the little chantry chapels, and a few windows, pinnacles, and parapets,—belongs to the Early English period, passing in the easternmost limb into Early Decorated. Salisbury, which is also entirely Early English, has the disadvantage for the architectural student of being all cast in one mould, each bay being a reproduction of one design, whereas at Lincoln, the erection having been spread over the greater part of a century, while the same general design is adhered to throughout, the treatment is varied; and even in the portions which were built at the same time, there are minor differences which prevent monotony and impart a charming play of life and feeling to the conception. Time can hardly be better spent than in a careful study of the successive sections of this magnificent church, tracing the growth of the Gothic idea from its first appearance in St. Hugh's choir, through the transepts down the nave to the west front, and then retracing one's steps to the Angel choir at the east end, comparing and measuring each, bay by bay, part by part, detail by detail. To do this will take time, but it will bring its rich reward.

Lincoln stands in the first rank of English churches in point of scale. According to Lord Grimthorpe's very useful tables,§ it stands second of our Mediæval churches in superficial area, being only surpassed by York,—the one giving 57,200 square feet against 62,300 square feet in the other. The total length is about the same in both,—486 ft. at York against 481 ft. at Lincoln. The chief transepts are also about equal in length,—223 ft. at Lincoln and 222 ft. at York. In breadth and in internal height, however, York surpasses Lincoln, the breadth at Lincoln being 83 ft. in the choir and 80 ft. in the nave, against 106 ft. at York; while the roof at York is 101 ft. from the ground in the choir and 93 ft. in the nave; the corresponding heights at Lincoln being 74 ft. and 82 ft. It must be borne in mind that the groinings at York are of wood,—"paltry roofs" Mr. Freeman contemptuously calls them,‖ while the whole of those at Lincoln are of stone. The towers at Lincoln exceed those at York in height, as they do in beauty of design, the lantern tower of York being evidently incomplete. The heights given in Lord Grimthorpe's list are,—central tower, 262 ft., Lincoln; 198 ft., York; western towers, 206 ft. Lincoln; 196 ft., York.

Lincoln, like York and Worcester, Southwell and Selby, practically maintains its full height from end to end. There is neither a group of low chapels at the east end, as at Wells and Salisbury, Winchester and Exeter, nor a porch or chapel at the west end, as at Ely and Chichester and Durham, to add to its measured length. The ridge line of the choir roof at Lincoln is in point of fact a little lower than that of the nave, but the difference is unimportant.

The ground-plan of Lincoln is complete in all its parts, and one of the most harmonious in its proportions among English minsters. It will be seen from the plan given that, in common with Canterbury, Salisbury, Worcester, Beverley, Rochester, and York (where, however, the second transept was of small projection, and was subsequently absorbed in the widened aisles), it is provided with a second pair of transepts. These choir transepts, which seem to have been borrowed from Clugny, came into use contemporaneously with the removal of the ritual choir from its original place in the lantern space and the eastern bays of the nave, into the elongated eastern limb, and to have been connected with the processional visitation of the altars on high festivals. It will be also seen that there is a kind of second transept at the west end, containing chapels. This arrangement gives great breadth to the west front, and an effect of space and light to the church on first entering which is very attractive.* The east arm of the great transept has an eastern aisle of three square chapels, according to the common arrangement. The smaller and earlier eastern transept has two chapels in either arm, each a segment of a circle in plan. A two-storied Early English porch, cruciform in plan, known as the Galilee, one of the most marked features of the exterior, projects from the west side of the south arm of the great transept, as a state entrance for the Bishop, the room above serving as the Court of the Dean and Chapter, where causes were heard and offenders tried pertaining to the jurisdiction of the Close. Of annexed buildings the chief is the Early English decagonal chapter-house on the north side of the Angel Choir, and the Decorated cloisters which give access to it. A vestry, also Early English, with a vaulted treasury below and a chamber above, now used as a song school, projects from the south-west angle of the smaller southern transept. There are three Late chantry chapels,—that of Bishop Fleming, annexed to the north aisle of the Echo choir, and those of Bishops Russell and Longland to the south aisle, which, by their difference in height and contrast of style, contribute much to the picturesqueness of the exterior.

The first cathedral was erected by Remigius of Fécamp, the first Norman Bishop, on the removal of the see-church from Dorchester-on-Thames to Lincoln. A small parochial church, dedicated to St. Mary Magdalene, stood on part of the site, which was entirely demolished by him, part of the western portion of the cathedral being assigned to the parishioners for worship. Lincoln Cathedral, therefore, was from its commencement a "double church," partly parochial, partly collegiate. Such it continued till the Episcopate of Oliver Sutton (1280—1300), when mutual convenience led to the erection of a separate church for the parishioners between the two newly-erected gate-houses on the west side of the close. Remigius' church was ready for consecration at the time of his death (1092 A.D.). It was a cruciform church, doubtless with a low central lantern, and with preparations for two western towers, which it was left to his next successor but one, Bishop Alexander, *circa* 1141, to complete. The eastern limb was short and had no aisles. It terminated in a semi-circular apse, as at Peterborough destitute of a procession path, of which the foundations remain beneath the pavement of the present choir, the springing of the arc being visible under the floor of the stalls. There is enough left of Remigius' church to determine its dimensions approximately. It was about 325 ft. in interior length, *i.e.*, full 160 ft. short of the existing church, by 28 ft. in breadth, exclusive of the aisles, for which we have no data, *i.e.*, 10 ft. less than at present, and 60 ft. in height to the level of the flat-boarded ceiling. The only portion of Remigius' cathedral remaining besides the footings of the apse is the central portion of the west front, with its three deep-arched recesses, forming a kind of screen in front of the western towers, and the first bay of the nave, where the character of the clearstory is indicated by a single rather wide Norman window, ranging with the triforium of the existing church, and the wider arch of the triforium which may be traced below. Remigius' church suffered from a severe conflagration *c.* 1142, when, as so often happened in Norman churches, the ceilings and roofs were burnt off, and the stonework was more or less damaged. The injury was repaired by Bishop Alexander, "the Magnificent," the nephew of the great building prelate, Roger of Sarum, the mighty Chancellor of Henry I., who vaulted the whole church with stone, and that with such "subtle artifice," says Henry of Huntingdon, that "it looked more beautiful than in its first newness." To this prelate we may safely assign the completion of the west front by the addition of three richly-arcaded gables over the deep-arched recesses of Remigius' design, and the corresponding gables on the north and south-western flanks of the towers which still remain. Those on the west front were removed when the church was heightened and the façade refashioned, not very happily, in the first half of the thirteenth century. The weather-mouldings of the two side gables still remain in the wall behind, together with the intersecting arcade at their base, to bear witness to their former existence. Alexander also at the same time raised the western towers, with their three ranges of rich Norman arcading,* and probably crowned them, as well as the corner turrets, with spires of timber covered with lead, as at Long Sutton, near Spalding. The great centre and side doorways, with their richly-ornamented receding archways and grotesquely-carved shafts, belong to the same epoch of "reformation." They fully deserve Sir G. G. Scott's praise as "truly exquisite specimens of the latest and most refined period of Romanesque just before its transition into the Pointed style."† With the exception of the features connected with the west front, the whole of Alexander's work has passed away.

The great epoch of change which substituted the present exquisite fabric for the plain and heavy work of the Norman builders began with the episcopate of Hugh the Burgundian (1196-1200). In 1185 the cathedral had been rent "from the summit to the base." How much damage was actually done we cannot tell, but soon after Hugh's appointment he set to work vigorously, not merely to repair the mischief, but to erect a new and larger church in the recently-developed style, which we know as Early English Gothic. The foundation was laid in 1192. The architect was one Geoffrey of Noyers. Whether he was an Englishman or a Frenchman has been a matter of rather warm debate, and also whether the great advance from the Transition to the pure Gothic, of which St. Hugh's choir and transept afford the earliest example of which we know the exact date, was conceived, and brought to the birth on this or the other side of the Channel. In support of the English claim are the great names of Scott, Parker, Freeman, and Viollet-le-Duc; while the French origin of the design is upheld by the late Professor Willis and, more recently, by Professor C. H. Moore, of Cambridge, Mass., U.S.A.‡ It is a controversy on which it is not necessary to enter here. I must, however, express my decided opinion, which is not affected by the nationality of De Noyers (the name certainly looks French), that, in the earlier stages of its development, England was in the main indebted to France for its architecture,—the first great step onwards, the choir of Canterbury Cathedral was indisputably the work of a French architect, William of Sens—and that, though the movement was, roughly speaking, contemporaneous in both countries, France was generally in advance of England. St. Hugh's work at Lincoln consists of the ritual choir of four bays, the eastern transept of three bays in each arm, with the crossing, and the commencement of the eastern wall of the western or great transept. As originally built, this eastern limb

---

* We may mention that this series of illustrations of the Cathedrals of England and Wales commenced with Canterbury, which appeared in the *Builder* for January 3 last. Since that date, the following Cathedrals have been illustrated, viz., Lichfield, in the number for February 7; St. Albans (before the alterations of recent years), March 7; Peterborough, April 4; Wells, May 2; Exeter, June 6; Salisbury, July 4; Bristol, August 1; Norwich, September 5; and Rochester, October 3. The twelfth of the series, viz., Gloucester, will appear in the *Builder* for December 5 next.

† Judges, ix., 8.

‡ "Lectures on Mediæval Architecture," vol. i., p. 306.

§ Beckett's "Book on Building."

‖ "Towns and Districts," p. 308.

* There is a similarly-placed chapel on the north side of the west end of the "Abbaye aux Hommes" at Caen, also, like that in the same place at Lincoln, called the "Early Morning Prayer Chapel."

* These Norman towers are incorrectly assigned to Remigius in the note in the corner of Mr. Begg's sketch of the western towers.

† "Lectures on Mediæval Architecture," vol. i., p. 303.

‡ "Development of Gothic Architecture," p. 134. "In general, the foreign influence governs the construction, while Anglo-Norman influence appears in the decorative details. Nearly every part of the structure is French in general form, and Anglo-Norman in decorative detail."

terminated in a three-sided apse, with segmental chapels attached to the diagonal walls, corresponding to those on the east side of the small transept.* A processional aisle was continued round the apse, and it was finished by a hexagonal chapel, occupying a similar position to the chapel known as Becket's Crown at Canterbury. The foundations of this apse were first discovered in 1791, when the church was being repaved, and again in 1887, when a detailed description of the discovery, with plans, was published in our columns.† In St. Hugh's choir each bay contains a somewhat broad pier arch, with mouldings of a singularly beautiful profile, supported on clustered columns, with detached shafts, and capitals of stiff curling foliage *a crochet*. The fall of the central tower, of which we shall speak hereafter, having jarred the arcade, several of these piers have been cased and the detached shafts built up, to the great sacrifice of beauty, but to the advantage of strength and stability. The triforium range, which was also dislocated at the same time, contains in each bay two arched openings, each subdivided into two sub-arches. The tympanum is everywhere solid, pierced with a trefoil or quatrefoil, unmoulded, affording an example of plate-tracery of the rudest kind. In one bay on the east side of the south-east transept the tympanum is unpierced—as it is at the Cathedral of Sens.‡ In the adjacent bays we have a trefoil punched out, as it were, in the solid stone. It would almost seem as if this was the first part of the new work executed, and that the architect was trying his hand on a novel experiment. The heaviness of the solid tympanum displeased him, so in the next bay he tried how the piercing would look, and thus took the first step which gradually led on to the complicated ramifications of traceried windows. The clear-story throughout St. Hugh's work consists of lancets, coupled in the west bay, in the other bays in groups of three, and always shafted. The vaulting of the choir is eccentric, and unpleasing in its eccentricity. The pairs of vaulting cells, instead of meeting on the central rib, diverge, one to the east, the other to the west; producing a singularly crooked effect. The vaulting of the transepts, both eastern and western, is sexpartite of an ordinary type, and is much more satisfactory. Before we pass from the choir the stall work must be mentioned. This was the work of Treasurer John of Welbourne, who died in 1380. Each stall is surmounted by a lofty canopy of tabernacle work, graceful in design and careful in execution. The statuettes long wanting in the upper niches of the tabernacles are about to be supplied by individual benefactions. The misereres and poppyheads exhibit some curious grotesques.

A marked characteristic of St. Hugh's work is the double wall arcade beneath the windows in the aisles; a row of trefoil arches on shafts standing in front of a row of pointed arches, the shafts of the outer row bisecting the arches of the inner. This arcading is found throughout the choir, and extends through the first bay of the great transept to the beginning of the second bay on each side, and there suddenly stops, the arcade being continued in a single plane. This reduction of the more elaborate plan probably corresponds with the death of St. Hugh in 1200.

The transepts which followed the completion of the choir agree with it in general design, but with a decided falling off in its treatment which must be pronounced clumsy. The chief features here are the two circular windows, the "Dean's Eye" looking to the north, a fine example of plate tracery, with a circumference of sixteen circles surrounding a large trefoil, all filled with its original thirteenth-century painted glass; and the "Bishop's Eye" looking to the south, a beautiful specimen of Flamboyant, substituted for the earlier window in the first half of the fourteenth century.

We have no documentary evidence as to the building of the nave. But we must certainly place it between the death of St. Hugh in 1200 and the fall of the central tower *c.* 1237. During these years we know from written documents that large building works were in progress, and we can hardly be wrong in identifying them with the nave. It is a noble work, exhibiting the Early English style in its perfect development, free from the crudities and clumsinesses which are observable in the choir and transepts. It consists of seven bays, with a ground-story of richly-moulded arches supported on clustered piers of varied plan. The two westernmost bays are narrower than the others, and it is to be wished that the same proportions had been adhered to throughout, and the sense of instability created by the wide spacing of the arches avoided. As in the choir, each bay of the triforium contains two arched openings, subdivided into three sub-arches, except in the narrower western bays, where there are only two. The clearstory is formed of lancet windows set in groups of three. The vaulting is quadripartite, with two pairs of secondary ribs which are only ornamental. Throughout the church the want of height in the vault is sensibly felt. In the choir it is positively crushing. But in the nave, where the vault is actually somewhat loftier, the lowness is far less perceptible. The western chapels, opening on either side into the nave, have been already mentioned. That to the north has its groined roof supported by a very tall clustered Purbeck marble pillar of great slenderness. The west end of the nave gives us a kind of narthex formed by the base of the towers and the space between them. Through an error in planning the axis of the later nave does not strike the centre of the west front, and the arch connecting the new work with the old is consequently out of centre. The west window is filled with somewhat flimsy tracery of Early Perpendicular date, unhappily inserted in a lovely Early English arch. Above it is a large cinquefoiled circle of that date, fortunately untampered with.

The west front, though singularly striking, and, from an historical point of view most interesting, as an architectural composition is far from admirable. It presents a combination of architectural features of various dates, without any structural unity, and is rather a mask to hide the building behind it than its decorative architectural expression. The lofty screen wall which flanks the gable and terminates the front,—"a clothes-horse to hang arcades on" it has been called,—is singularly unhappy from its hiding the lower portion of the towers which stand behind it, and deepens our regret for the Norman gables already referred to, which carried their design down to the ground in honest fashion. The noble lofty belfry stories, with their pairs of tall canopied windows, which finish Alexander's Norman towers, belong to the very earliest period of our native Perpendicular. Singularly enough, the cathedral records are absolutely silent as to the date of their erection. I do not think that there is much reason to lament the removal of the slender spires,—"spits" rather than spires,—at the beginning of this century.

In or about 1237, during the episcopate of Grosseteste, the newly-erected central tower fell from the weakness of its legs, and was replaced by the existing tower, then carried up to the height of the two lower stories, and capped with a timber spire. In these two stories we have the Early English style in its greatest perfection of pure design and rich but well-considered ornament. The stone diaper work which here and elsewhere marks Grosseteste's epoch, is a simple but most effective decoration. In the episcopate of Bishop John of Dalderby, *c.* 1307, the lofty upper story of this tower was begun, and finished in about four years. It was ready for its bells in 1311. Originally it, too, supported a tall spire of wood, covered with lead, which contended with that of Old St. Paul's for being the highest in England. This was struck by lightning and fell in 1548. The present cut battlement was put up by Essex in 1775, and is by no means bad. This tower is the crowning glory of the building, perfect alike in its proportions and its ornamentation. It is acknowledged by that rather severe critic, Professor Moore, to be "truly magnificent, and certainly one of the grandest and most beautiful towers in Europe."

The latest part of the fabric and the most beautiful, is the prolongation of the choir beyond the eastern transept, popularly known as the "Angel Choir." This addition, the gem of the building, which was begun soon after 1255, and was ready for the translation of St. Hugh's relics in 1280, consists of five bays, two included in the ritual choir, and three forming the retro-choir in which stood the shrine of the saint, and under the east window the altar of Our Lady. It is an exqusite work, belonging to the very best period of our native architecture, and executed with the greatest delicacy and refinement. The sculptured angels in the spandrels of the triforium, from which it derives its popular name, are allowed, even by Professor Moore,—who considers the whole design to be much over-praised,—to have "considerable merit." The general richness of the exterior is well exhibited in Mr. Begg's view, which shows also the grand east window, styled by Mr. Freeman "the very noblest specimen of the pure and bold tracery of its date," as well as the gabled and elaborately-sculptured southern portal, a second state entrance for the Bishop, the nearest approach after the north transept-doors at Westminster Abbey to the magnificent doorways which are the glory of the French cathedrals. Within, the Angel Choir suffers, in common with the whole church, from want of height. Mr. Begg's view will show that, as the roof rises sufficiently high to give "room for a gable window big enough," says Mr. Freeman, "to be the east window of a large church," there is less excuse for the timidity which has kept the whole vault, especially that of the eastern limb, so low.

There was no substantial addition to the fabric of the church after the completion of the Angel Choir. The central tower received its upper story, and the western belfries were raised, the three western windows were inserted, to the detriment of the symmetry of the west front, and the chantries already mentioned were added outside the aisle walls, but in other respects Lincoln is singularly free from Perpendicular additions and depravations.

Of subordinate buildings, there are cloisters and chapter-house. The latter, a decagonal building, with a lofty pyramidal roof and huge detached flying buttresses subsequently added to resist the thrust of the vaulted roof, which springs from a central clustered pillar, is well shown in Mr. Begg's view. It has recently been subjected to a thoroughly good conservative repair under Mr. Pearson's directions. This has included the restoration of the magnificent double doorway, and a very beautiful Early English wall arcade, a continuation of the design of the interior on the western outer wall, which had been brutally hacked away by the builders of the cloisters to accommodate it to their new work. Happily they left fragments enough to completely recover the original design, which has been faithfully reproduced by Mr. Pearson. The cloisters are a charming work of the Early Decorated style, erected quite at the end of the thirteenth century, in the episcopate and mainly at the instigation of Bishop Oliver Sutton. The groining is of wood, with elaborately-carved bosses. Those of the eastern walk were some time ago illustrated in this journal.* But Mediæval masons often did very bad, dishonest work. It was so here. The cloister was built without any foundations. The walls naturally bulged outwards, and that to the north fell and lay in ruins till the latter part of the seventeenth century, when it was replaced by a Doric arcade supporting the library above, the work of Sir Christopher Wren, recalling his design in Neville's Court at Trinity, Cambridge. To prevent further ruin, during the last few years the whole of the remaining three walls have been taken down and carefully rebuilt, stone for stone.

Lincoln is not rich in monuments. There were never very many, the sepulchral brass being the form of memorial usually adopted by bishops and others. The whole of these, of which there was a great abundance, as the matrixes show, were torn up by the Parliamentary soldiers in 1644, who also greatly mutilated the altar tombs, and effigies. At the east end are the canopied tombs of Sir Nicholas Cantelupe and Prior Wymbysh, and a series of Burghersh tombs, including those of the Bishop, his father, and his brother, Sir Bartholomew. All of these are works of great excellence, of the latter part of the Decorated period. The panelled back of the shrine of Little St. Hugh, in the south aisle of the choir, belongs to a somewhat earlier period in the same style. The reredos is a modern work of Essex, but the adjacent screen walls preserve portions of the original Decorated work of great beauty. The Easter sepulchre, on the north side of the choir, with its six lofty pedimental canopies and elaborate sculpture, is also a fine Early Decorated work. The organ screen is a composition of great richness of detail, belonging to a later period of the same style. The diapered wall of the Choristers' Vestry and the lavatory below is a beautiful work of the same time.

* It will be remembered that at Canterbury semi-circular chapels occupy a similar position in the eastern transept, though much shallower than those at Lincoln.

† See *Builder* for May 7, 1887, p. 755.

‡ See the view given, Scott's Lectures, vol. i., p. 94, fig. 30.

* See *Builder* for July 19, 1890.

The Norman font of black marble, with a square basin resting on four shafts, and a central cylinder, like that at Winchester, is a relic of the original Cathedral of Remigius.

There is some old painted glass of great excellence in the windows of the great transept, and in those at the ends of the choir aisles. Some of this, however, is in its original position, with the exception of that in the northern rose, or "Dean's Eye." This is described by Mr. Winston as "one of the most splendid and most perfect works of the thirteenth century." The southern rose, or "Bishop's Eye," is mostly filled with fragments collected from other windows, producing a magnificent effect. Of the modern stained glass, of which there is a great deal, the less that is said the better. I may, however, except the windows in the Chapter House, illustrating the history of the Cathedral, by Messrs. Clayton & Bell.

EDMUND VENABLES.

*** We have only to add to Canon Venables' interesting article, that we are indebted for the plan of the cathedral to Mr. A. Beresford Pite; for the drawings of the two caps to Mr. T. Rogers Kitsell; and for the sketches of the north transept and the western towers to Mr. John Begg, who did not content himself with merely fulfilling our commission to make a view of the cathedral, but voluntarily put at our disposal also any of his existing sketches of it which we liked to make use of. To all three gentlemen we beg to offer the best thanks, on behalf of ourselves and our readers.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

(Continued from page 347.)

On the other hand, the selection of a competent architect, possessing the confidence of the employer, and furnished with full particulars of his requirements, obviates the risk of there being any inspiring motive other than that of devoting his highest powers to the attainment of the best possible result. For these and other reasons which I have elsewhere recorded, and cannot enter on now, I have ventured to maintain that architects would do well to abstain from encouraging competitions by taking part in them, for they would thereby deal a deathblow to a system the evils of which in my judgment vastly preponderate over any fancied advantage. If, however, architects will not do this, and if consequently competitions are becoming more and more frequent, it is well to do what we can to minimise the evils inherent in the system, and this the Institute aims at by publishing and circulating the Paper of Suggestions for the conduct of Architectural Competitions.

Without, however, entering more fully into this question, to which I have only referred incidentally, I desire to emphasise one feature in the recent competition for the completion of the South Kensington Museum, which appears to me to be specially worthy of comment and approval. In a national work such as this, no one could have cavilled had the Government themselves nominated the architects who were to be invited to engage in the competition, but they were evidently actuated by the desire to make the best as well as the most fairly representative selection. Hence, having limited the number of competitors to eight, they nominated four, and requested the Council of the Royal Institute of British Architects to nominate the other four. This laudable desire to consult the profession through its representatives in a matter of national importance is, I think, highly creditable to the Government, and demands recognition at our hands. Needless to add that the Council took every pains to fulfil conscientiously the trust reposed in them. The satisfactory arrangements for this competition were completed in the appointment by Government of Mr. Waterhouse as assessor, who at the time worthily occupied the position of President of the Institute, and whose wide experience in such matters constituted of itself a guarantee for an impartial and a just decision. It would not become me to indulge in a critical notice of the designs submitted in this great competition. When, in the nature of the case, the decision involved the disappointment of seven out of eight competitors, with all of whom we must, more or less, sympathise, we can only refer to it with mingled feelings; but I may venture so far, I think, as to say, that I believe even his rivals in the competition will generously concur in our satisfaction that the work has been confided to the care of one so able to do it justice as our Honorary Secretary, Mr. Aston Webb.

The Congress of Hygiene and Demography which was held in London in August, and proved so great a success, treated of some subjects which are of interest to members of our profession. There is not, perhaps, much to say that we have not heard before, of architecture in relation to the health of the community from a practical point of view, and it was possibly for this reason that Sir Arthur Blomfield, as President of the Architectural Section, devoted his inaugural address to the subject of Hygiene in relation to Art, which with the suggestive treatment it received at his hands could not fail to create considerable interest. I confess that the connexion between Hygiene and Art appears to me to be somewhat remote. To reside in a cheerless street, to occupy a badly-proportioned room, to gaze on inharmonious tints, are no doubt depressing conditions, not likely to raise one's spirits; but man is a creature of habit, and I question whether permanent association with such conditions of life, dreary for a time as it may be, would injuriously affect health. Have we not known artists live amid inartistic surroundings, aud yet exhibit no symptoms of decaying health? Still, the subject might form an interesting inquiry in the hands of an imaginative author; and as Sir Arthur Blomfield stated in his closing remarks that he would like to see such an inquiry further pursued, I venture to suggest that it could not be left in better hands than his own.

The consideration of Open Spaces occupied some of the time of the Congress, and to those who, like ourselves, are denizens of this densely populated city, no argument is required to demonstrate the importance of the subject. There are perhaps few cities so well provided with open spaces as London; but, on the other hand, there is no city that more requires them, for there is none with so teeming a population, increasing year by year with such fabulous strides. Essential as it is, however, with the view of promoting the health of the community, to provide parks and gardens wherever practicable, it is if possible even more so to make our streets worthier of the name of open spaces than they can now be said to be. Narrow streets and lofty houses are the natural and inevitable result of concentration. When people must live within a prescribed limit it is necessary to pack close; land assumes a fictitious value, and in order to secure a return on capital invested, houses,—which cannot be extended laterally,—are carried to an abnormal height. This, being the outcome of circumstances which are beyond control, constitutes a difficulty for which it is not easy to suggest a remedy. Something may be done by legislation. The London Council (General Powers) Act, 1890, has already prescribed a statutory limit to the height of buildings, which is so far good as being a step in the right direction. I cannot but think, however, that this limit is excessive, and certainly too great to exercise any hygienic effect. In theory the true restriction would be to regulate the height of buildings by the width of the streets in which they stand, but obviously such a rule could not be applied to London without inflicting injustice. It is necessary, therefore, to prescribe a general limit, and to allow no departure beyond it except with the sanction, specially obtained, of the County Council; and I should be disposed to advocate that such limit should be fixed at 70 ft., instead of 90 ft. as prescribed by the Act of last year. We cannot, however, hope to effect much in the direction desired without the sympathy and concurrence of landowners. The interest of the freeholder is no doubt to get as much as the leaseholder will give; this is human nature, and, moreover, is confirmed by the law of political economy,—supply and demand: as demand increases, value will be enhanced, and *vice versâ*. But it is no less true that the real interest of the landlord is not always best consulted by the exaction of the full pound of flesh, and I would venture to suggest that large landowners in London would do well to adopt the more enlightened policy of considering concurrently with their own interest the general welfare of the public, by inaugurating such improvements and granting such concessions as the exceptional circumstances of this huge metropolis demand. In illustration of this, and to demonstrate its feasibility, I would refer to the liberal and enlightened policy displayed by the Duke of Westminster in the management of the Grosvenor estate, by increasing the width of streets, and restricting the height of houses. Such a policy means the sacrifice of so much rent-bearing land, as well as the acceptance of a smaller ground-rent than would be obtained without restriction of height; but besides conferring a distinct advantage on the public, it must in the long run react for the benefit of the landowner himself by rendering his estate cheerful and attractive. It is by the adoption of such an enlightened open-space policy that landowners in London may contribute materially to the hygienic welfare of the community, and I venture to commend it to their favourable consideration, as well as to that of their agents and advisers.

During the last six months we have suffered inconvenience from the strike of the carpenters and joiners of London, and the lock-out by the master builders which ensued. All must deplore the necessity,—if necessity there be,—for resorting to such methods of dealing with the constantly-recurring disputes between the representatives of capital and labour, necessarily destructive as they must to a great extent be of that feeling of mutual confidence and respect which should subsist between employer and employed. The strike in question was the result of a claim on the part of the men for shorter hours and a higher rate of pay per hour,—a claim which was resisted by the masters on the ground that it would increase the cost of labour to the extent of at least 11 per cent., while, in their opinion, the state of trade would not justify any increase at all. At any time I have not much faith in the interference of outsiders in trade disputes, because, although they are no doubt actuated by the best of motives in offering their services, they are not always qualified by the possession of technical knowledge for the position they seek to occupy; but when, by virtue of my official position as President of the Institute, I was approached by the parties to the present dispute, and when, as the result of a conference, they mutually agreed to refer their differences to my arbitration, I did not feel at liberty to decline the proposal. While fully appreciating the confidence and trust reposed in me as your representative, you may readily believe that the position is a most arduous one, involving grave responsibility. I do not, I hope, need to assure you that my award will be the result of anxious consideration and exhaustive inquiry. Though in the nature of such things it is scarcely to be expected that it can be perfectly satisfactory to both parties, I venture to indulge the hope that it may at all events conduce to the ultimate welfare of the great interests involved. In the meantime, it is something to be thankful for that in many a saddened home the glad tidings have been welcomed that the miseries and privations which have been the necessary accompaniments of the carpenters' strike have now terminated.

Contemporary architecture exhibits vigour and originality of treatment, and many features that command admiration, even amid much that, in London at least, is discouraging. When, for example, we reflect that of the thousands of houses erected yearly in this metropolis, the vast majority are not designed by architects, but by clerks and employés of speculating builders, one is tempted to despair of the domestic architecture of London; and it does seem strange that, in face of this patent fact, the public and the daily press persistently make architects responsible for abortions with which they have had nothing whatever to do. It is bad enough to be deprived of the opportunity, except in comparatively rare instances, of showing what our domestic architecture might be if designed by specially-educated artists; but it is monstrous that, although so deprived, we should yet be held responsible for the grotesque productions of men who are uneducated, and whose minds are innocent alike of refinement and taste. To bring about so magic a transformation as that the architecture of London might become the work of architects, would require the wand of an æsthetic Prospero; but something may possibly be attained by more prosaic means. I understand, for example, that in granting new leases the Duke of Westminster stipulates in his building agreements that architects shall be employed, again setting an example which other large landowners would do well to emulate, not so much on the lower ground of encouraging the employment of architects, as on the higher ground of by means of

their employment improving the street architecture of London.

I do not mean to say that it necessarily follows that every product of an architect's brain must be beautiful and command admiration; true, one can point to many examples where the work of an architect is conspicuous, mid everyday surroundings, by its taste and refinement—such, for instance, is the charming little residence at one corner of Cadogan-square, designed by the late Mr. Street, a glance at which is sufficient to betray the artist's hand. But truth, I fear, compels the admission that, in the midst of much that is meritorious and beautiful, there is not a little to regret in the work of contemporary architects, and it behoves us not to cast stones unless we are ourselves without sin. It was written some 3,000 years since by one who is acknowledged to have been the wisest of men: "The thing that hath been, it is that which shall be; and that which is done, is that which shall be done; and there is no new thing under the sun." Obviously this doctrine does not find expression in the architecture of these latter days, in much of which there seems to me, too often, to be an overstrained and unnatural craving for novelty. Some recent buildings, indeed, would seem to declare: Perish fitness, perish consistency, perish beauty, but at all hazards, novelty! Now, do not misunderstand me; do not imagine that I fail to appreciate the freshness of original treatment, or that I advocate adherence to dull monotony—far from it; by all means indulge the fancy in the production of original compositions; give free rein to the imagination in designing novel devices of detail or of ornament—so long as both are restricted within the sacred confines of beauty, for "a thing of beauty is a joy," for which no novelty, however striking, will compensate. When beauty is deliberately sacrificed, as it frequently is, for the mere craze for novelty, the genius of Architecture is insulted, and her place usurped by another and a less worthy goddess. In the words of Sir Joshua Reynolds: "What has pleased, and continues to please, is likely to please again. Hence are derived the rules of Art; and on this immovable foundation they stand."

There is such a thing as selfishness in design—it may not be so common as the same quality in life, but it cannot be said to be rare: the indulgence in quaint personal conceits or idiosyncrasies, not necessarily beautiful because novel, instead of the manly effort to curb mere selfish quixoticisms, and to produce results which will be pleasing to the refined taste of others, because in harmony with what is beautiful. But it is surely possible to be unselfish in art as in life, and to indulge in almost infinite variety of treatment without offending the educated taste of others by disregarding those principles of artistic design which the testimony of past generations has approved as contributing to beauty; and we may rest assured that we can only trangress such established canons of art at the risk of probable if not certain failure. Take, for example, the law regulating the disposition of voids and solids. You will find not far from where we now are, a building designed by a master where this canon is, apparently for no particular object, wantonly disregarded, with the result that might have been expected—a discomposing, disturbing, and unsatisfactory effect. It is enough to make the angels weep, if indeed they ever think of sublunary architecture, to see, as in this case, what is in many respects a meritorious design disfigured by a stupid attempt at novelty, at the expense of an acknowledged canon of art.

A noticeable instance of selfishness in architecture, although not such as I have now referred to, is afforded by the additions to King's College now in course of erection at the eastern end of the river façade of Somerset House. I know not who is responsible for this building, and I can therefore speak with freedom respecting it; I know not what justification can be urged for it on the plea of necessity; but I do know that to have studied the requirements of accommodation only, without regard to cherished surroundings, is, in such a case, selfishness of the worst description. One would have fancied that the façade of Somerset House, which has been admired by past generations, as it will continue to be by generations yet unborn, would at least have been held sacred from innovation or injury, but in this, as in many other things, we live to learn; and it is with astonishment and grief that I see what I regard as one of the grandest public buildings in London wantonly sacrificed to the unneighbourly selfishness of modern utilitarianism. Should it be possible still to take action with the reasonable prospect of a successful issue, I shall be glad to join any movement having for its aim the removal of a structure which cannot fail to excite the indignation, not merely of lovers of art, but of all, because our public buildings are trusts for the protection of which each generation is responsible.

The true principles of design should never be set aside for any considerations of novelty, however tempting. To insist on this is not to restrict freedom in design, or to put a drag on imagination. The words of the wise man which I have quoted, if applied to the principles of art, are as true to-day as they were the day they were written, for those principles are immutable. The great artists of the world have recognised them in all ages. Nay, we may go further, and reverently declare that in all the wondrous and infinitely various creations of the Great Architect of the Universe such laws are to be traced. All the creations of nature are controlled by law. The seed falls into the ground, and produces the fruits of the harvest or of the garden, according to its kind. You plant the acorn, and not the elm or the beech, but the oak, is reared. Here is law; but within such restriction what infinite variety! Of the thousand leaves of that oak which rustle in the breeze no two will be found alike; of the millions of human beings on our globe there is not one who has not been born subject to law, and yet there are not two persons in the whole world who are identical; here is infinite variety and originality of design, ceaseless novelty, but all controlled by irrefragable laws. So may we in our architectural creations conform to established canons of art, and yet freely indulge the fancy in infinite variety of treatment, whether of form, or ornament, or colour. In our contemporary architecture I long to see the more apparent recognition of such controlling principles of design: even in their too common absence I discern elements of hope and promise, the true development of which will, if I mistake not, inaugurate what I for one regard as "a consummation devoutly to be wished," the advent of pure classical taste. Indulging this hope, I see in the not far distant future no baseless fabric or insubstantial pageant of cloud-capped towers, gorgeous palaces, and solemn temples, but a sober vision of architecture worthily commanding admiration, whose characteristics it is not difficult to define:—simplicity, without which there is no true greatness in art or in life; breadth and symmetry, without which there is no dignity; the absence of quaint though picturesque insignificances, which destroy repose; above and beyond all, the supreme acknowledgment and expression of the beautiful.

Mr. Alfred Waterhouse said he considered it a great honour to be allowed to be one of those to give expression to their feelings of gratitude to the President for the address which he had delivered, and which had been listened to with such great attention. He himself thought it a noble address — an address which they must not be satisfied with having heard once, but which they should read over again and again and ponder what it said to them, and endeavour to carry its precepts into practice. He would not attempt to traverse the address, but he would allude to one or two points in it. First of all he would call attention to the way in which their President had commented upon the controversy which took place in the *Times* some months ago on the question, "Is Architecture an Art or a Profession?" He thought that they could none of them regret that controversy, even those of them who took some part in it, when they had listened to the words in which their President had discussed the subject, and especially for his definition of the ideal architect: an artist, a skilful constructor, and a man of business. That seemed to him to sum up the whole controversy in a nut-shell; and if there were any outside the pale of that Institute who thought that those of them who were within it were too much devoted to mere matters of science or matters of business, why did not they come inside its pale and restore the balance? Their President, he thought, was equally happy in the way in which he had described the result of the obligatory examinations. Those examinations had certainly been most successful in their results, and he thought they were destined to be still more successful when the new system of progressive examinations came fairly into play, and the student was obliged to begin his systematic studies from the very commencement of his pupilage. With regard to the admission of Fellows, he supposed that the Fellows of that Institute would be, for the future, mainly recruited from the distinguished class of examined Associates. But he hoped that the Institute would always keep open a door through which to admit any architect of extraordinary ability, as shown by his works, who should not have been fortunate enough to have entered its ranks through the method now prescribed. The President's words as to the deep debt of gratitude that they owed to the Chairman and the members of the Board of Examiners, he thought they would all cordially echo. Their patient labours and the amount of valuable time which they had devoted to the good of the profession was, indeed, beyond all praise, and he was sadly afraid beyond any remuneration they were likely to receive at their hands. But that was no reason why they should not show their appreciation of their services by doing all that they could in that way. The closing sentences of their President's remarkable address he thought it would be well for them all to take to heart. He referred especially to what the President said as to beauty being sacrificed to mere novelty, a craze which they were passing through at the present day. That craze for novelty it behoved them all to be on their guard against. And he most heartily concurred in what the President said about selfishness; and as to the care that they ought to exercise that none of their works should interfere in any way with the works of other architects who might be their neighbours, and the merits of whose works might be quite equal to their own. He was quite sure that there was a vast field open to them for self-abnegation in that respect. In conclusion, he wished most sincerely to congratulate the President upon his address, and begged to propose the most cordial thanks of the meeting to the President, Mr. Macvicar Anderson, for it.

Colonel Prendergast seconded the vote of thanks to the President for his learned, graceful, and carefully-argued address. He did so because he fancied that the outside public ought to have some share on that interesting occasion when the President met the Royal Institute for the first time; and he knew of no members of the Institute who were nearer the outside public than their Honorary Associates, of which he had the honour to be one.

The motion having been put and carried by acclamation, the President expressed his acknowledgments.

The Disfigurement of Somerset House Front.

Mr. Aston Webb, Honorary Secretary, moved the following resolution:—

"That this meeting desires to call the attention of Her Majesty's Office of Works and Public Buildings to the injury now being done to the architectural effect of the river front of Somerset House by a building in course of erection at the east end of it, under the authority, it is understood, of King's College; and hopes that steps may yet be taken to mitigate this injury."

This was seconded by Professor Kerr, and, after a brief discussion, was carried *nem. con.*

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION:

PITFALLS ON COMMENCING PRACTICE.

THE second ordinary meeting of this Association for the present session was held on Friday, the 30th ult., in the meeting-room of the Royal Institute of British Architects, 9, Conduit-street, the President, Mr. F. T. Baggallay, in the chair.

The minutes of the last meeting having been read and confirmed,

Mr. E. S. Gale, senior honorary secretary, announced the names of two further donors to the special fund for the new educational scheme of the Association, viz., Mr. George Waymouth and Mr. Gordon Smith. He proposed a vote of thanks to the donors, which was carried by acclamation.

Mr. Gale also announced that Mr. R. Langton Cole had made a donation to the Association of some photographic lantern slides, illustrative of Canterbury Cathedral and the Church of St. Saviour's, Southwark. Mr. Cole desired the Association to form a collection of photographic lantern slides, and he had made the presen-

tation of the present series of slides as the nucleus of such a collection.

A vote of thanks was accorded to Mr. Cole by acclamation.

The following gentlemen were then elected members, viz.:—Messrs. J. Richardson, A. R. Hill, F. H. Mercer, R. A. V. Harrison, C. O. Nelson, W. C. Bigg, D. Horn, F. A. Whitwell, W. Hodgers, W. C. Thomas, W. D. Colmer, C. E. Hutchinson, W. Carpenter, A. St. Quintin, C. S. Joseph, T. Henwood, F. D. Clapham, G. E. Withers, A. M. Watson, J. Blyth, S. E. Knott, F. S. Hammond, E. Tylee, T. Ballantine, R. H. E. Hill, R. Angell, R. F. Summers, R. E. Walton, A. Gilbertson, E. W. Lees, W. K. Shirley, A. H. Hawkins, A. J. Johnson, F. A. Meakin, H. V. C. Smith, C. Kensington, A. E. Hodson, U. C. Wood, O. F. Stenning, R. P. Griffiths, T. N. Dinwiddy, E. S. Austen, B. C. Law, E. G. Simpson, M. Zimmermann, W. J. Childs, T. J. Fox, N. W. Harrison, H. P. G. Maule, R. Robertson, E. Whittle, G. C. Beresford, L. Shuffrey, and H. N. Kerr.

The President said he had to announce the name of the gentleman nominated by the Committee to fill the vacancy in the office of Vice-President of the Association, which had occurred through the resignation of Mr. F. R. Farrow. The Committee had very carefully considered the matter, and they thought that whatever their action and opinion might be in another case and in the future, considering the work which Mr. Farrow had done for the Association and what the Association owed to Mr. Farrow, considering also the value of Mr. Farrow's experience in teaching and its value to the Committee at the present time, that they could not do otherwise than nominate Mr. Farrow for re-election.

Mr. W. H. Bidlake then read a paper on "Pitfalls on Commencing Practice."

After some preliminary observations, Mr. Bidlake continued:—

"The first great question with the newly-hatched is to get a client. You must have put up a house for somebody before anyone will trust you to put up a house. Getting under way is, in fact, such a difficult and hazardous process nowadays to those who are self-dependent, and who have no practice to succeed to, that the first pitfall, perhaps, lies on the very threshold of commencing practice. The wisest course is not to commence until you have secured your first job from an old family friend, or won it in competition. Dead charges must be kept as low as possible. Better to share an office in a good neighbourhood than have a garret to yourself up a break-neck staircase; and 'taking in washing' for other architects as evening work will pay office expenses better than going to the theatre. You must be in deadly earnest if you are to make a start. It is not the wisest thing to spin a large web, and then retire into the corner to watch for the first fly to get entangled. In fact, an architect must not retire at all, or the world will forget him, and go on its way rejoicing. He must keep himself before it, even if it will not regard him as either useful or ornamental. When, at last, a client calls, first impressions are everything: personal dress and manner, evidence of order and system in the office, readiness to grasp ideas, and that indescribable air of confidence in self which wins the confidence of others. Old Mr. Turveydrop laid much stress on deportment. Above all things, beware of unpunctuality; every excuse for it falls flat.

It is well to get to know something about your client. Had I done so on one occasion I should have avoided a pitfall. For my client got more than I did. He got five years' penal servitude, and I only got my expenses as a witness, less 4s. 6d. for the warrant; and with the balance I bought my experience.

As I am not the only one that has suffered from a similar fraud, and as builders, land agents, and lawyers have been equally victimised, I will give some account of it. A man of respectable appearance goes to a land agent and negotiates for a piece of land. He selects a firm of standing and repute, as their name affords him a kind of guarantee of *bona fides* in all his subsequent proceedings. After arranging with a solicitor to draw up the lease, he comes to the architect representing himself as retired and living on his means, and desirous of building himself a house in the neighbourhood of the town, and refers to his dealings with the land agent and 'his solicitor.' He is perfectly frank. As he is not well acquainted with the town, he asks a few questions, and, in the course of conversation, gives some information about his own neighbourhood, and casually mentions a friend or two. Of course, the architect chuckles, as usual, over a new work. The sketch and working drawings are soon made, the quantities taken out, and builders' tenders invited. He must have a good builder; he does not mind a little extra expense if necessary, but he must have the work done well. He hates the speculative type of building. He is a client after the architect's own heart, and the latter congratulates himself on his good fortune. A tender is at length accepted, but not the lowest. The contract is then signed, the work commenced, and proceeds merrily. If, as in one or two instances, suspicions have been aroused as to his means, he has willingly given references, and doubts have been lulled. In such cases, he has written to the post-offices of the towns they have been addressed to, requesting their return in the name of the addressee, as owing to a change in his plans he should not be there to call for them. He has then replied to the various letters, and made arrangements for the answers being posted at the respective towns. At length the first instalment becomes due, and the architect's certificate is obtained by the builder and presented. And then the client disappears. Search is in vain. It then transpires that he has obtained a mortgage on the building and materials on the site from the solicitor, and has absconded with a cheque to the value of the first instalment. The land agent, solicitor, architect, quantity surveyor, and builder all look very foolish, but it is the latter who has to bear the chief weight of the loss. The most unsatisfactory part of it is that it is difficult to see how to prevent the perpetration of similar frauds in the future by any other adventurer.

After giving his ideas, a client always says he has very little money to spend, and wants the work done as cheaply as possible. The reason he says this is because there is a deep public distrust of architects about money matters. He would not be satisfied if you took him at his word. What he requires is his full money's worth in arrangement, construction, material, and design. At the same time, very clearly understand his meaning on the money question; and remember "Cutler *v.* North."

A building enterprise is quite a novelty to him, and he comes to an architect to be told how to set about it, and trusts him to see him through with it without either loss or embarrassment. His ideas are often very vague and unpractical. You have to help him to define what he wants. Sometimes you will have to save him from himself, to even assume a kind of authority over him, and say, 'That would not do; this must be so.' He will come with a pet idea which he has been nursing with pride. You see at once the impracticability of it; but don't contradict him. You may offend, but you will not convince. Best to conciliate with a compliment, or a graceful remark, before saying anything unacceptable. 'Whistle your dog to you before you kick him.' If you take his idea, and it is unsuccessful, he will forget its parentage and reproach you with it; or, he will say,—and rightly so,—'I came to you, as a specialist, to be advised.' If, on the other hand, his idea is successful, do not be surprised if he takes credit for the whole work, plan, design, and all. He will condense this in the remark to his friends, who have been admiring his house, 'Yes, you see, I gave my architect my ideas.' Have a distinct understanding about your personal retainer, and the scale of remuneration. If the arrangement is in any way unusual, have its limits well defined. Endorse any verbal agreement by a letter, and keep a copy of it. Many a pitfall might have been avoided with a little circumspection at the beginning.

Some architects regard their clients with feelings akin to antagonism. This is a most dangerous state of mind to begin with, and fruitful of evil. Your relationship with your client is intimate and confidential. Make him your friend. Be perfectly open with him, and make him conversant with all the steps of the undertaking. He has a right to know all about it. Throw yourself with enthusiasm into his interests. Forget that you are working for a definite remuneration. If you are doubtful as to how to act on any occasion, imagine yourself to be your client for the time being, and, whatever befalls, it would be suicidal to quarrel with him. If first impressions are important, parting impressions are still more so. Always part friends. You will avoid a difficulty if you explain to him very clearly the question of 'quantities.' The extra $1\frac{1}{2}$ or 2 per cent. will give him a shock at first; for, in all probability, he will be quite ignorant of the custom. Let him understand that you employ a surveyor as his agent; that if the contract is executed the contractor will pay the surveyor, but that if it is not executed it will devolve upon him to do so.

Take care you do not entangle your client with the authorities, or his neighbours. Look well to the question of street frontages and party walls, and be very cautious with underpinning. If any bill for damage is presented, he will be very angry with some one, if only for the relief of his feelings, and that some one will be his architect. The question of 'ancient lights' presents a peculiar difficulty in the light of a recent legal decision. The architect is placed on the horns of a dilemma. He may either advise adjoining owners of the extent of his building, and so bring various exacting claims upon his client, which would otherwise never have been preferred, or he may ignore the question of 'ancient lights' and incur the risk of having to mutilate the building to accommodate them, when it is more or less complete, with the certainty of a good quarrel with his client, and the possibility of an action by the latter to recover damages. The best thing to do is to discuss the matter very fully with the client, and allow the responsibility to rest with him.

In fact, one-half the pitfalls into which the architect stumbles arises from the want of a full discussion and a clear understanding. Mere verbal agreements are often worse than useless, for the memory becomes biassed by the inclination, and the two disputants are sure to have different versions of the same interview. Have everything in black and white. Do not trust to the honour of your friend or client in a question of moment, for however honourable he may be, you are sure to quarrel with him in the end. No; endorse verbal agreements by a letter and keep a copy, and enter an account of the interview or any important particular into your diary. And a diary, by the way, should be an indispensable adjunct of every office. Letter-writing is either a virtue or a vice. It is a good servant and a bad master. When the writer is not known personally, his character is implied from his letter.

Frequent letter-writing keeps an architect in touch with his surroundings, and a client is flattered by receiving a letter from time to time, and feels assured of his architect's interest in the work. But, remember, that, when posted, a letter is beyond recall, and,—for good or evil,—you are wedded to the opinions expressed in it. I try myself to get into the habit of regarding the possibility of every business letter being brought into a court of law. Clients are always in a hurry to commence work. Do not encourage it. Haste is fraught with danger. Preliminary drawings are not to be dashed off against time, as you commit yourself by them to the broad lines of your design.

Prettily-got-up sketch-drawings are a delusion and a snare. You are gratuitously preparing your client for disappointment. And, as for an estimate of cost, it is like an infernal-machine, and is not to be handled with light-hearted carelessness. Do not commit yourself to figures when you can help it; but, if you do, be sure your figures are correct. You may depend upon it you will be held to them afterwards. Do not court responsibility: it is a golden rule for an architect, and,—beware of lady clients.

Precautions desirable with a client become imperative with a committee. It has been observed that committees and corporate bodies are sometimes capable of meanness and questionable transactions, which each individual member would repudiate in private life. An architect must study men as well as materials, for he has to deal with both. The committee meeting is a field for his tact, and it is often required. Meetings of educated business men are usually agreeable and methodical, but less educated men rush into windy talkativeness and open contention. Let the greengrocer have his talk out; it is his first opportunity of expressing his opinions to a wider circle than his own fireside. But do not descend to the fray. Do not commit yourself until the fight is over; and then, in the lull after the storm, your words will break upon the stillness with a clear and incisive authority. A committee usually consists of one who leads and the rest who follow, and it is the leader, of course, that the archi-

tect has chiefly to reckon with. At the same time, he must hold himself perfectly independent. Once let an architect sacrifice his independence, and pitfalls will yawn around him on all sides.

Do not receive any instructions whatever from an individual member of a committee unless you have proof of his being officially authorised to give them; and especially remember that nothing but the corporate zeal will bind a corporation. If you are acting for a body of men, you must manifestly be instructed by them as a whole: the majority may repudiate the opinions of the individual, and throw the responsibility on you for having listened to them.

Do not work for charity. Bricks cost money, so must brains. Besides, man cannot appreciate what he does not pay for. Neither make your remuneration subject to approval, or to to the correctness of your estimate of cost. A doctor is paid even for killing his patient. You may find, to your dismay, that, although you have prepared three sets of drawings, or any number of sets, and have spent endless trouble, the mere 'not approved' of your client will annul all claim for remuneration. But, as you have voluntarily submitted to the arrangement, you have only yourself to blame.

To the architect who has started in practice with few friends and less capital there comes a pinch which tests his fibre. It is just then that he is tempted to work 'for charity' and on approval in the hopes of getting a connexion, and there will never be wanting those who will take advantage of his embarrassment.

Accepting trade discounts and less remuneration than the legitimate 5 per cent. compromises his independence, and will be as an albatross round his neck for all his future career. With regard to the former, it seems to me better to have nothing to do with them, even if the client fully understands their nature and accepts the benefit of them himself. But on this point opinions differ. As for building speculation, touch not the unclean thing. Second-rate solicitors and impecunious builders are the best combination for that. I am not supposing this advice is necessary here, but a discussion of the pitfalls of commencing practice would be incomplete without some reference to these snares, which have proved fatal to many. Being hard up is really such a dangerous state for a man to be in, that I do not think the law ought to allow it.

After all, the 'world is for him who waits,' and architects know full well that money spent on a solid foundation is not thrown away.

With regard to the working drawings, it is a mistake to make them too showy or artistic. They are only a means to an end, and the end is that the building shall be worked out accurately from them. It is also a mistake to show too much detail on the eighth-scale drawings. At the same time, they must be thoroughly thought out and worked out, or else the architect will find himself in the deadly grip of 'extras.' If a thing will not work out satisfactorily on the drawings, it is a fallacy to suppose it will come right in execution; and the less ambiguous the drawings are, and the less they are left to the interpretation of the architect, the less disputing there will be with the builder.

Do not accept the accuracy of plans or maps on the assurance of other people. Plot out the site for yourself; and do not try conclusions with the authorities.

Sometimes one is tempted to sacrifice convenience to design. It is a pitfall. Beware in time. Either rearrange the parts so that the two do not clash, or else face the inevitable at once. If you do neither, some ghastly deformity will be arranged by your client to remedy the inconvenience. And who is to blame? If you build your chimney so low that it smokes, be prepared for the deformity of a cowl.

Be sure of your construction. You are responsible for it. It is, of course, false economy to stint the strength or stability of the construction for the sake of ornamental character: 'First the garment and then the frill.'

As it is clearly a pitfall to cause clients to suffer inconvenience, or the annoyance of subsequent expense to rectify the architect's ill-arrangement or neglect, I may mention some instances which occur to me, in which this sometimes happens with regard to arrangement, and will afterwards refer to similar precautions with regard to the actual building. Many others will occur to you, and I hope that in the discussion this evening, many will give us the benefit of their experience.

In house-planning, a wise architect takes the ladies into his confidence. Their chief requirements are plenty of cupboard-room, well-lighted steps to the cellar, and a kitchen on the ground-floor. Be sure and have plenty of head-room for staircases. On one of your visits of inspection, the foreman will come up and say, 'If you please, we can only get 6 ft. head-room for the back stairs, we've tried it all manner of ways.' And just then the client walks up from behind and says, 'What's the matter?' Single steps and single winders are dangerous, and are generally signs of thoughtlessness. Warm the staircase, or the house will never be free from draughts; and if there is an unusually large surface of window in a sitting-room, such as a bay-window, the cold radiation of the glass will always produce draughts, if no special arrangement of hot-water pipes is introduced. Shut off the kitchen offices from the rest of the house, and well ventilate them, or the smell of cooking will pervade the house. If the journey from the kitchen to the dining-room is long, or circuitous, the dinner will be cold; and that is a point upon which every Englishman feels sensitive. Place the bath-room over an unimportant room, so that if the bath overflows, no great amount of damage will be done, and take precautions against water in the cellar. Consider the position of the furniture in each bedroom, and treat domestic servants as human beings, worthy of more comfort than a cheerless garret affords."*

THE INSTITUTION OF CIVIL ENGINEERS:

SUBJECTS FOR PAPERS, SESSION 1891-92.

THE Council of the Institution of Civil Engineers invites Original Communications on the subjects included in the following list, as well as on any other questions of professional interest. For approved papers the Council has the power to award premiums, arising out of Special Funds bequeathed for the purpose, including the Telford Fund, the Manby Donation, the Miller Fund, the Howard Bequest, the Crampton Bequest, and the balance of the Trevithick Memorial Fund.

List.

1. Observations on the Strength of Materials, and on the Apparatus employed for Testing the same.
2. The Theory of Alternating Stresses in Elastic Bars, with regard to the estimation of the ratio of the Kinetic Safe-load to the Statical Safe-load.
3. The Influence of Continued Vibration and Impact from Rolling-Load, as affecting the physical properties of wrought-iron, cast-iron, and steel.
4. Ship-Canals and the Canalisation of Rivers.
5. The laying-out and equipment of River-Ports, such as Frankfort-on-Main, with reference to improved methods of trans-shipping merchandise.
6. The Action of Weirs in times of Flood.
7. Description of any new or peculiar types or applications of Mountain Railways for very Steep Gradients or other local peculiarities.
8. The Design and Construction of Ship-railways.
9. Machinery and Appliances for Tunnelling.
10. Comparison of the various Systems of Mechanical Ventilation for Mines, Long Tunnels, Underground Railways, Sewers, &c.

* * * * *

21. The Management of Large Highway Districts, including the use of Steam-Rollers for the repair of country roads, and the various types of highway-bridges of moderate spans.
22. The Use of Sea-Water for Municipal Purposes, *e.g.*, for watering roads, for fire-extinction, for public and private baths, and for flushing sewers.
23. The Application of Electricity to the Treatment of Sewage.
24. Forms and Construction of Masonry-Dams for Reservoirs.
25. Methods for the Prevention of the Waste of Water, and for the detection of the same.
26. The Design and Construction of Modern Gas-Holders of large size.

* * * * *

50. The most suitable Form of Electric-Light Mains having regard to durability, economy of conducting-material, and facility of making and laying house connexions.
51. The application of Electricity to smelting and Metallurgical Operations.
52. Electrical-Measuring Instruments — such as Ammeters, Volt-meters, Power-meters, and Supply-meters.
53. Telemeters for military and engineering use.

PREMIUMS AWARDED, SESSION 1890-91.

The following are among the awards made for Original Communications submitted during the past session:—

For Papers Read and Discussed at the Ordinary Meetings.

A Telford Medal and a Telford Premium to Rookes Evelyn Bell Crompton, M.Inst.C.E., for his Paper on "The Cost of the Generation and Distribution of Electrical Energy."

A Telford Premium to Frederick Ewart Robertson M.Inst.C.E., for his account of "The Lansdowne Bridge over the Indus at Sukkur."

A Telford Premium to Edward Waller Stoney, M.E., M.Inst.C.E., for his description of "The New Chittravati Bridge, Madras Railway."

Telford Premiums to Professor John Milne, F.R.S., and John McDonald, for their joint paper "On the Vibratory Movements of Locomotives, and on Timing Trains and Testing Railway-Tracks."

A Telford Premium to William Langdon, for his Paper on "Railway-train Lighting."

For Papers Printed in the Proceedings without being Discussed.

A Telford Premium to John James Webster,* M.Inst.C.E., for his Paper on "Fire-proof Construction."

A Telford Premium to Charles Preller Sheibner, Ph.D., Assoc.M.Inst.C.E., for his account of the "Carrara Marble-District Railway."

For Papers Read at the Supplemental Meetings of Students.

A Miller Prize to William Archer Porter Tait, B.Sc., Stud.Inst.C.E., for his account of "The Lanarkshire and Ayrshire Railways."

A Miller Prize to John Walter Brown, Stud.Inst.C.E., for his account of the "Malta Dockyard Caisson No. 4."

A Miller Prize to Auriol Sealy-Allin, Stud.Inst.C.E., for his description of "A New Type of Water-Motor."

A Miller Prize to William Herbert Wheeler, B.A., Stud.Inst.C.E., for his Paper on "The Cleaning and Deepening of Rivers and Canals by means of the Transporting Power of Water."

* The remainder of the paper, with some notes of the discussion, in our next.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday afternoon last at Spring-gardens, the Chairman, Sir John Lubbock, presiding.

Chief Officership of the Fire Brigade.—On the joint recommendation of the Fire Brigade and General Purposes Committees, it was resolved to advertise for a successor to Captain Sir E. M. Shaw, resigned, at a salary of 800*l.* per annum, in addition to quarters, coal, and gas.

Parks Superintendent.—The debate on the recommendation of the Parks and Open Spaces Committee to advertise for a Parks Superintendent, at a salary of 700*l.*, was continued and concluded, and the recommendation was agreed to by 56 votes against 38.

Acceptance of a Tender for the Construction of the Blackwall Tunnel.—On the recommendation of the Bridges Committee, it was resolved, by 41 votes against 19,

"That, subject to an estimate being submitted to the Council by the Finance Committee in accordance with the statute, the tender of Messrs. S. Pearson & Son for the construction of the Blackwall-tunnel, amounting to 871,000*l.*, be accepted, and that the Solicitor be instructed to prepare the necessary contract."†

The London Water Question.—Mr. Benn asked whether there was any information as to the present relations of the Council with the City on the subject of the water supply; and, further, whether any communication had been received in reply to the letter addressed to the Prime Minister requesting an answer to the letter of December 12, 1890, in which the Government was asked to institute an inquiry as to whether the present sources of water were adequate in quantity and quality to the growing demands of the population.

Sir Thomas Farrer (the Vice-Chairman) said that in respect to relations with the City, he had the satisfaction of stating that, after a communication between a deputation from the Water Committee of the Council and a deputation from the General Purposes Committee of the City, the City entirely agreed with the Council's proposals. In other words, they had agreed that the Bill to be jointly introduced should be a Bill framed on the lines of the agreement between the City and the Council of last summer. In that Bill there was no provision whatever for compulsory purchase, or for binding the Council, or the City, or the new Water Trust to arbitration. With regard to the letter to the Government, he had also the satisfaction of stating that a reply had been received by the Chairman from Lord Salisbury stating that the Government had the subject of the water supply under their very serious consideration.

After transacting other business the Council adjourned.

ENTRANCE-HALL, "THE LODGE," NEWMARKET.—We are asked to mention that the work at this house, illustrated in our pages last week, was carried out by the building department of Mr. Whiteley's well-known establishment at Bayswater.

* Has previously received a Telford Medal and a Telford Premium.

† For full list of tenders see the *Builder* for the 17th ult., p. 301.

LIVERPOOL ENGINEERING SOCIETY.

THE first ordinary meeting of the eighteenth session of this society was held at the Royal Institution, Colquitt-street, on Wednesday evening, October 28, a large number of members being present.

After the usual routine business, Mr. John T. Woods delivered his inaugural address, the subject of which was the collection and disposal of sewage and the pollution of rivers. He stated that the question of sewage disposal broadly lay between irrigation and precipitation with filtration, and the first essential condition of a perfect system of sewerage for any centre of population was that the sewage should be collected in practically watertight sewers and drains, so designed as to sizes and gradients that, being self-cleansing, they would admit of its speedy removal to some convenient place for treatment. He then proceeded to point out the difficulties that lay in the path of the sanitary engineer who had advised the treatment of a certain sewage by broad irrigation, not the least of which, he said, was the difficulty of obtaining a sufficiently large area of land of a suitable quality in such a position and at such a price that the Local Authority would be justified in acquiring it. He then dealt with the various characters of the soils met with, and their advantages in producing good results, both in the shape of effluents and crops, and proceeded to discuss the question of the under-drainage of irrigation areas, and the objections taken to such areas on the plea of nuisance to the surrounding inhabitants, together with the quantity of land required in various cases. Estimates were then given showing the first cost and the annual cost of maintenance of a farm where the sewage was treated entirely upon the land, and of a similar farm where precipitation was first employed, and the sewage afterwards filtered through a much smaller area of land. From these estimates, he said, it appeared that, alike on the merits of purification and on the basis of annual cost, broad irrigation, when it is possible to conduct it under fairly good conditions, is the more preferable system. Mr. Wood concluded his address with some remarks upon electrical processes of purification.

COMPETITIONS.

PORT TALBOT INTERMEDIATE SCHOOL COMPETITION.—Owing to the dissatisfaction expressed in this competition at the non-appointment of a professional assessor by the committee, as promised (a matter on which we commented in our issue of the 10th ult., p. 273), the whole of the plans were returned, and the committee, with the assistance of Mr. E. M. Bruce Vaughan, F.R.I.B.A., have reconsidered the plans, with the result that those of Mr. T. P. Martin and Messrs. Phillips & Holdgate were selected. The committee have appointed Mr. Martin to carry out the work, subject to the approval of his plans by the County Council and Charity Commissioners.

Correspondence.

To the Editor of THE BUILDER.

LIGHT AND MOTION.

SIR,—In a pleasant and appreciative notice of my little work on Electricity, which appeared in your issue of October 24, you express yourself hopelessly mystified by a passage of which I venture to ask your insertion of the very short explanation which the case necessitates. You say: "Ever since Prof. Tyndall hit upon the unfortunate title, 'Heat considered as a Mode of Motion,' all *popular* text-books have followed his lead, so that we are not surprised to find (p. 292) 'it [radiant heat] does not appear as heat at all, but as motion; and the same is true of light and of 'radiant' electricity. There is no light, as we understand light, except where the presence of gross matter modifies the action of the æther; the interplanetary and interstellar spaces are dark. . . . . And this motion is capable, *under the right circumstances*, of appearing either as light, or heat, or electrical energy." The italicised words do not appear in your quotation, but they do in the original passage, and I therefore insert them, as they help to elucidate the meaning. You say:—"Mrs. Caillard can hardly mean that a person placed in interplanetary space could not see the stars, though her words seem open to that interpretation. We quote the passage rather as an illustration of the popular use of the word 'motion,' than with any hope of arriving at its meaning."

Certainly, if any human being were placed in interplanetary space he would see the stars, for the requisite condition would be fulfilled, the action of the æther would be modified by the presence of "gross matter," and, in fact, if the position in space were well chosen, there is no doubt that the stars might be much better seen than from the earth.

With regard to the word "motion," I am not aware that its popular and its scientific meaning differ in any way. "Energy," "force," "work," and many other words have, no doubt, a distinct scientific and popular definition. If "motion" also has, I should be obliged to you for pointing it out. EMMA MARIA CAILLARD.

*** In the scientific sense, "motion" means "momentum," which under no circumstances can become energy. In the popular sense, it is merely movement or change of place, and it is not these movements, but the energy involved in them, that can properly be called heat. It seems that Mrs. Caillard meant to say that light cannot be seen if there is no eye to see it, which we are not inclined to dispute. To deny, however, the name of light to the vibrations of the æther is equivalent to asserting that light is a physiological phenomenon, and merely another name for one of our sensations.

HOURS OF WORK.

SIR,—"C. B.'s" suggestion [p. 296, *ante*] that the mechanics in the building trade should commence work at 8 a.m., and after having partaken of breakfast, is, I think, likely to be more and more advocated by those interested in building operations. It is an idea that suggested itself to me this spring, when having work done at my own house in the north of London. Carpenters and men of other trades arrived punctually at 6 a.m. to work, having been up in several instances between four and five in the morning to enable them to get from a short distance down the G.E.R. line, where they were living; and this, Sir, in the last bitter early spring, and on an empty stomach,—a condition of things very trying to elderly or weakly men. If anyone says, "Why do men live so so far from their work?" the answer is twofold. Firstly, because men never know in this large metropolis where the job on which they are engaged may be situated; and, secondly, the possession of a little house with a garden is a thing they highly prize and strive after, and is greatly to be encouraged by those who wish them well. Life in such barracks as the model dwellings in the heart of the town is not a desirable one for the men, their wives, or their children, and it will be found that reasonable and proper accommodation in these buildings is expensive. Moreover, the constant clearance that is made of small properties, that the sites may be devoted to business and other better paying property, sends the working man into the outlying suburbs. Now, Sir, I venture to think that if breakfast was partaken of before commencing work, the men would find great physical comfort and improvement from that practice. The hours I advocate would be 8 to 12, then one hour for rest and dinner, and work again from 1 to 5.30 p.m. This would give 8½ hours for five days in the week; the extra half hours would be carried to the credit of the Saturday half-holiday. Here I think an alteration would be necessary, for if people commenced work at 8 a.m. it would be an unreasonably short day to leave off at noon. A half-hour for dinner on Saturday would enable them to leave off at 2 o'clock, the same time that so many people leave off work in many other employments.

A week's work of forty-eight hours is not *one hour* too much, for this can only be made in the best months of the year; for four months in the year at least shorter days compel shorter hours.

I think it would also be found that the average workman did during the week every bit as much work under these conditions of time as in the case of the somewhat longer hours now prevailing.

EDWARD STREET,
District Surveyor and Surveyor to the Law Fire Office.

October 24, 1891.

SIR,—Just a few thoughts suggested by reading in the *Builder* a proposition for altering the hours of commencing and leaving off work in the building trade. I for one would most strongly object to any alteration in the direction laid down by the writer. I am an old joiner (on the shady side of sixty), and the most of the time my work has laid at a distance from my home, requiring me to be up and out soon after five o'clock, and some of us have to be out before that, just as the writer stated. And suppose the time of starting work was altered to eight o'clock, well then we should have to leave our home at half-past six or seven, and to have our breakfast comfortable with our wives and children, that would mean that our wives and children would have to turn out about six o'clock, or before, in order to have our comfortable breakfast ready. Well, I don't think our wives would welcome the change. And then we should have to work on till twelve or one o'clock, and then dinner, and then leave off at six and home again, and one and a half hours journey home, making it half-past seven, and then tea, and then bed. And is this all we working men have to live for? If so, is life worth living? Of what use is the two hours in the morning? only to lie in bed a little longer, and it is just about as comfortable to turn out on cold, foggy mornings at seven as it is at five o'clock. If you could make the hours from ten to four say, that would be nice.* And then some of us working men belong to churches and chapels of the various sections of the Church, and are engaged in various ways in the evenings—some in Gospel temperance, in Bands of Hope, choral classes, tract distribution, visiting the sick poor; some in various building societies, evening schools, and classes for improvement. Some of them don't know much of the idleness spoken of by the writer. We quite believe that Satan finds some mischief still for idle hands to do, and some of us believe, and not only believe but we know, that godliness is profitable even in this life, and there are a goodly number that can testify to the same effect, and we wish that the number might be multiplied a thousandfold; and if this were the case we should hear less of strikes and lock-outs, and this unhappy warfare that is going on between capital and labour all around us, producing enmity and illwill where there should be peace and goodwill. Are we not all brethren? The welfare of the working classes is the prosperity of the nation, and the welfare of the nation is righteousness. A JOINER.

NEWINGTON LIBRARY COMPETITION.

SIR,—In your account of the above it was stated that I received the second premium. I should like to say that Mr. S. L. Schneider was associated with me in the work. SIDNEY R. J. SMITH.

The Student's Column.

MARBLES.—XIX.

CORNISH SERPENTINES.

THE serpentines of Cornwall are regarded by many as the most beautiful ornamental stones in the kingdom. We have had occasion to allude to them incidentally in treating of serpentines as a whole, and in regard to their origin, cause of colouring, pattern, &c., the student is referred to our previous remarks. These rocks occur principally in the promontory of the Lizard at its southern part, and are nearly surrounded by a broad, interrupted border of hornblendic schists which appear to constitute a kind of basin enclosing the serpentine plateau. Mr. Brenton Symons, F.C.S., remarks† that the serpentine itself acts very much like granite in its general behaviour in the field, for though it seems to have little disturbed the southern dip of the slates at Helford, there is in some localities a kind of passage between the hornblende schists and serpentine, with an outward dip, and it has even broken through the slates at Pencarrack and cut through the hornblende schists at Porthalla. It is noteworthy that these junction rocks are accompanied by a development of a limy substance and much red colour in the serpentine. Mineralogically, the Lizard serpentines can be roughly separated into two groups; in the one a foliated mineral of the enstatite group is a conspicuous accessory; and in the other a colourless augite or hornblende, usually the latter.‡ A few are non-porphyritic and in some cases exhibit no certain traces of any pyroxenic mineral, rhombic, or monoclinic, though some iron oxide is always to be detected, and in one instance (at the Rill, west of Kynance Cove) the presence of a fair proportion of felspar has been asserted.

Serpentine is well adapted for purposes of ornament, being moderately soft, but hard enough to receive an excellent polish, whilst it is not brittle, being easily worked. In many parts of the world this rock occurs only in small blocks, a circumstance which naturally has powerfully operated against its use for decoration on a large scale, but in the Lizard quarries blocks quite large enough for general purposes occur, and can be easily raised and shaped. It is found that the size of the blocks increase with depth of working,—not an uncommon feature with many stones in the market. Some of the quarries are worked about sixty feet, or more, from the surface, and the material is raised by means of wedges and lifting-jacks.

The Lizard serpentine is extremely variable in colour. Usually, it is a deep olive-green, but this is variegated by veins and bands of deep red, and lighter tints. About twenty-five

* At the same wages?—ED.

† "Geology of Cornwall," 1884, p. 25.

‡ Consult Bonney & McMahon, "Quart. Jour. Geological Society," xlvii. (1891), p. 466.

years since, the quarries were much worked; large buildings fitted with machinery for turning and polishing were put up at Penzance, and numbers of monoliths, ornaments, &c., were turned out; but we learn that the manufactory did not prosper, and the trade is not what it used to be. Nevertheless, all visitors to Penzance see from the masons' yards and shop-windows, that the polishing of this beautiful material is by no means an extinct industry, and quarries are still in working order in the southern part of the Lizard promontory.

The quarry north of Cadgwith produces a stone mainly of a red colour; a black serpentine there contains porphyritic crystals of bastite. The celebrated Flag Staff quarry yields a material which is remarkable for the abundance of the shining crystals of bronzite it contains. At Killavwn a jet-black serpentine is found, and this is common in the district near Enys Head. Dark serpentine is also found at Treal quarry, near Ruan Minor Church; Kennack Cove, where it has calcite or magnesite in veins; Coverack quarry (west of the village), which has much disseminated opacite (?), affected by contact with surrounding rocks; Mullion Cove, nearly black, with much white hornblende; and Lawarnick Pit (W.N.W. of Kynance), rather dark. Prof. Bonney thinks that some of the chlorite in the last-mentioned rock is probably a bleached biotite mica. Serpentines of different shades of red are found in the quarry west of Carn Spernic; at Coverack Cove; Polkerris; Goonhilly Downs quarry where the stone, with brown hornblende, is streaky; Lower Predannack quarry, where it has much white hornblende; and at Kynance Cove, which produces a striped reddish-brown and light greenish-grey material. Clouded reddish-brown and greenish serpentine containing small grains of diallage comes from near Pen Voose; whilst at Porthalla the stone is mainly of a green-purplish tint, and other green mottled stones are obtained from Lankidden Cove, George's Cove, and Holestrow. A variety with an olive-green base, striped with greenish-blue veins is found near Trelowarren.

Serpentine occurs in areas of small extent in other parts of Cornwall, as at Nare Head in Veryan Bay, where there is a group of rocks very similar in appearance to those at the Lizard. There is also a small outbreak through the clay slates at Duporth, near St. Austell, which has attracted considerable attention. This stone presents a diversity of greenish tints, relieved by angular whitish spots, and is exceedingly handsome. It works with facility, being easily cut with a tooth-saw, and its manipulation in the lathe is said to be highly satisfactory to the worker; the arris is preserved fresh, sharp and clear, and it takes a good polish. Duporth serpentine has been used, amongst other places, in the Cathedral of Truro; some of the vaulting-shafts in the choir and transepts, and also in the baptistry are made of it, and it is also introduced in the shafting in the triforium. Concerning this stone, the late Sir Warrington W. Smyth has remarked* that it "had been brought into use in the cathedral with great effect for columns and other purposes, and it might hold up its head and claim to be quite as handsome and suitable to the purpose as the Purbeck marble that was found in churches in other parts of the country."

In spite of the fact that the Duporth stone is held in such high esteem, however, the proprietor informs us that the difficulty in getting it from the storm-beaten coast is so great that he has very reluctantly been compelled to abandon working it in a systematic manner, though the material is frequently sold *in situ* to marble-polishing firms. Just outside the railway station at Menheniot there is a quarry in what is known as the "Clicker Tor" serpentine, where the stone is rich green in colour, with steatite veins. It is regarded by Mr. Allport as an intrusive mass of olivine dolerite partially converted into serpentine. Its microscopic structure has been well explained by Mr. Teall,† who describes its character as that of an altered "ophitic dolerite (diabase), in which olivine was present in great abundance, and felspar only to a very small extent."

Small slabs and pillars of Cornish serpentine are common in many superior buildings in London and the provinces. It is remarkable that it has not found its way in greater quantities to the American market. None of the serpentinous rocks in the United States, at present raised, can compare in point of beauty, in variety and elegance of colour, with those of the Lizard. Serpentine has been used with advantage for the backs of grates, the lining of stoves and furnaces, and the bottoms of bakers' ovens.

* "Fifty-fourth Report Roy. Corn. Polytech. Soc.," 1886, p. 26.
† "British Petrography," 1886, p. 124.

CORNISH PORPHYRIES.

In Cornwall and Devon many porphyritic rocks occur. The best-known, perhaps, are the porphyritic granites in which the large crystals of white orthoclase felspar are conspicuous in the finer ground mass of the stones. It is not our present purpose to describe the granites, but we may mention that there is every gradation between them and the rock found in elvan courses and known by the inconvenient, unscientific term—porphyry. The origin and structure of elvan dykes have been previously alluded to, and it is only necessary now to remind the student that in Cornwall these dykes are found traversing the masses of granite and running through the surrounding clay, slate, and country rock. The material is very handsome, but from the manner in which it occurs in nature—in confined and narrow dykes—it is not usually found in very large blocks. The refractory nature of the material, also, has been against its introduction into the market on a large scale, and though some elvans when first quarried are soft, they harden on exposure to the atmosphere for a few days.

From Tremore, near Bodmin, a handsome porphyry is found of variable tint; that having a reddish or flesh-coloured base, with crystals of white felspar, and occasionally some schorl and quartz, are the most beautiful, and it occurs in large quantities at Tremore village, and in a ravine above Ruthen Bridge. Sir Henry de la Beche says* that this porphyry has been cut and polished by water-power, and that it may be extracted from the quarry in large blocks. Another variety from the same neighbourhood is made up of light pink crystals of felspar, with others of quartz and schorl in a brownish-red felspathic base; and a third, occurring only in small quantities, is formed of greenish felspar crystals in a light, flesh-coloured base.

Between Bodmin and Truro, at Barton and Ennis, a fine red porphyry occurs, and good varieties may be obtained from some of the elvans at Gwennap. The Pentuan elvan has long been noted for its handsome appearance when polished. A stone from Seveock Water, near Chasewater, with a grey base, containing crystals of roseate felspar and nests of radiating schorl; a rose-tinted variety found between Tyecombe and Dowgas, near St. Austell; and another composed of white felspar crystals in a very dark-green base, found between Penhale and Bochin, are noteworthy. Others come from Mayon, near Land's End, and Boswednon Cliff, near Zennor. The small arcade on the east wall of the south transept of Truro Cathedral contains a series of shafts of red porphyry from Carnsew, Stithians; and Pentuan, Wild Duck, Newnham, and other elvans were used partially by way of experiment in restoring the lower part of old St. Mary's ornate south aisle.

The Cornish porphyry that has attracted greatest attention, however, is that from Luxullian, which consists of black schorl, and a little felspar and quartz as a base, in which are distributed large crystals of red orthoclase felspar. The late Duke of Wellington's sarcophagus, in St. Paul's, was made of this material, which is known as Luxullianite. The stone occurred as large boulders over the surface of the country, and has never been found *in situ*. Blocks of a somewhat similar porphyry have been observed near Letcha farm, about a mile south-west from St. Just.

* "Geology of Devon and Cornwall," p. 502.

OBITUARY.

MR. WILLIAM BOOTH SCOTT, M.Inst. C.E., for many years Chief Surveyor and Engineer to the Vestry of St. Pancras, died suddenly a few days ago at his residence at Hampstead.

SANDRINGHAM CHURCH.—Among the numerous birthday presents H.R.H. the Prince of Wales will receive on Monday next, are three stained glass windows, one given by the Queen, the others by various gentlemen connected with the Court. The windows have been designed and executed by Messrs. Heaton, Butler, & Bayne, under the supervision of Sir A. Blomfield.

GENERAL BUILDING NEWS.

RE-OPENING OF THE CHOIR OF MANCHESTER CATHEDRAL.—The re-opening of the choir of Manchester Cathedral, after restoration and repair, took place on the 28th ult. The work of restoration was commenced in May last. It was found necessary to remove the whole of the roof, which was taken down and cleaned, and a new roof added, to the under side of which the ancient timbers were secured by bolts and keys. According to the *Manchester Courier*, this ancient roof is supposed to have been erected by Warden William Huntington. At a later period in the history of the Cathedral, Bishop Stanley added a clearstory to the choir, in consequence of which the roof had to be taken to pieces and re-adapted for the enlarged structure. This is the third time since the roof was constructed that it has been re-arranged. The panels of the present ceiling have been cut out of the old rafters into half-inch boards, to which the ancient tracery had been affixed. The spandrels to each side of the wood corbels had hitherto been supposed to be of stone, but when the plaster was stripped off they were found to be of wood. The whole of the plaster and whitewash or limewash has been stripped off the columns and arches. The north and south aisles have also been relieved of plaster. All the tracery has been restored and the windows cleaned. The old tabernacle work and the screens have been cleaned both in the choir and in the Lady Chapel. The windows in the Chetham Chapel and the statues in the north and south aisles are being cleaned, while the brasses are being made visible and readable. A new communion table is being executed from designs by Mr. J. S. Crowther, the Cathedral Architect. The restoration has been carried out by Messrs. Southern & Sons, of Salford.

CHAPTER HOUSE FOR THE CATHEDRAL CHURCH OF ST. MARY, EDINBURGH.—The dedication of the new chapter-house of the Cathedral Church of St. Mary, Edinburgh, was performed by Bishop Dowden on the 31st ult. The original design of the Cathedral, of which the late Sir Gilbert Scott was architect, included the erection of a chapter-house, and when the Cathedral was built the foundations of the chapter-house were laid at the north-east corner of the edifice, but lack of funds prevented its being proceeded with. Money having been found, the chapter-house has been constructed on the foundations formerly laid. The architect of the chapter-house is Mr. J. Oldrid Scott, and the contractors were Messrs. Morgan & Sons, Glasgow. The internal facing of the walls of the chapter-house is of Farley Down stone. In form the addition is square, and from the top of the windows the sides rise and assume an octagonal shape. The central masonry is supported by a column of polished Shap granite. The floor has been laid out with tiles. The cost of the work was about 5,000*l*.

NEW VESTRIES, ST. GILES'S CHURCH, STONY STRATFORD.—On the 27th ult. the Bishop of Reading dedicated the above building. It is thirteenth century English Gothic in style, the clergy vestry being apsidal on plan and that for the choir 18 ft. by 14 ft. The walling is of Weldon stone, with dressings of Box Ground and Monk's Park Bath stone. The roofs are covered with selected old tiles, capped with Cooper's ridges, the apse having a moulded lead pommel and rich wrought-iron cross. The roofs internally are left as from the bench and boarded to a curve. Special pains have been taken to secure good ventilation independently of windows. A proper piscina with drain is provided. Barnard's slow combustion stoves, in suitable moulded mantels, are fixed, and wood-block floors laid in each vestry. The works have been well carried out by local contractors, from the designs and under the superintendence of Mr. E. Swinfen Harris, F.R.I.B.A.

OPENING OF A NEW ORPHANAGE AT GLASGOW.—On Saturday (we learn from the *Scotsman*) the orphanage which has just been erected at Whiteinch, in connexion with the Glasgow Institution for Orphan and Destitute Girls, was formally opened. The new home stands on an acre and a half of ground at the west end of Victoria Park, an excellent site, of which advantage has been taken in planning the building to obtain a south-easterly or south-westerly exposure to all the principal rooms, which thus have almost all pleasant views over the park. On the ground-floor are the living-rooms and other necessary accommodation. The system of small dormitories has been adopted, six in all provided for the sixty girls. The bedrooms are on the first and attic floors, special provision being made for the senior girls, and there is ample lavatory and bath-room and other conveniences on each floor; while the sick-room on the first floor commands a prospect of the park. The interior finishings are studiously simple. The architecture is Scottish Domestic of a simple type. The architect is Mr. S. Henbest Capper, of Edinburgh.

PARISH CHURCH, RENTON, DUMBARTON.—The memorial-stone of a new parish church at Renton was laid on the 10th ult. The design of the new church is seventeenth-century Gothic. The building will have a nave and transepts and chancel for choir, with side organ chamber. A tower of three stages will be erected in the centre of the front gable of the nave. This tower forms the entrance-hall, and provides in the upper stage the belfry for the peal of bells. The length of the building over

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised	Premium.	Designs to be delivered.
Cemetery Chapel	Barry and Cadoxton Burial Board	2nd, 5*l.* 5s.	Nov. 16
Technical School, Hopwood-lane	Halifax Corporation	50*l.* 25*l.*	Dec. 1
*Designs for Lunatic Asylum	Sunderland Lunatic Asylum Com.	100*l.* 75*l.* and 50*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor or Engineer.	Tenders to be delivered.
Four Houses, Hipperholme, Halifax	.....	R. Berry	Nov. 10
Bridge Work	Ripon Corporation	*Official*	Nov. 11
Fifty Cottages, Blaengarw, Glam.	Wm. Thomas	.....	do.
*Tar Paving Works	Mile End Old Town Vestry	J. M. Knight	do.
Steel, Tyres, Axles, &c.	Midland Railway	*Official*	do.
*Underground Urinals, Lothbury	Commrs. of Sewers	do.	Nov. 13
Two Blocks of Model Dwelling-houses, Purlwell	Batley Co-op. Soc.	H. B. Buckley	do.
*Baths, Lavatories, &c. at Schools, Upper Tooting	Westminster Union	J. Waldram	do.
Twenty Cottages	Newbridge Bldg Club	J. Francis	Nov. 16
*Roadmaking Works	Camberwell Vestry	*Official*	do.
*Painting, &c. Works at Pumping Station, Bow	LondonCountyCouncil	do.	Nov. 17
*Coastguard's Station, &c. West Looe	Admiralty	do.	do.
Additions to Warehouses, Mortlach Distillery, Dufftown, N.B.	.....	A. & W. Reid	do.
*Road Works	Southend Local Board	P. Dodd	do.
*Sewerage Works	Hatfield Union	G. M. Lawford	do.
District Police Station	Cardiff Corporation	W. Harpur	Nov. 18
*Various Works, Newcastle-on-Tyne	N. E. Ry.	W. Bell	do.
*Making-up and Paving Road	Fulham Vestry	W. Sykes	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Iron Fire Escape Staircases	Ormskirk Guardians	.....	Nov. 18
Sewerage	Cheadle S. A.	F. T. Inskip	Nov. 19
*Pipe Sewers with Manholes, &c.	Bexley Local Board	A. Williams & Son	Nov. 24
*Coastguard Station, Peterhead	Admiralty	*Official*	do.
Cookery Centre and Caretaker's Residence	Plymouth Sch. Bd.	H. J. Snell	do.
*Alterations, &c. to Premises, London Central Meat Market, &c.	Commrs. of Sewers	*Official*	do.
*New Infirmary	Lichfield Union	W. H. Woodroffe	Nov. 27
Drain Pipes, Iron Bars, &c.	Cheshire Lines Com.	*Official*	Nov. 28
*Superstructure of New Buildings	Dorset County Asylum	G. T. Hine	Dec. 2
Oddfellows' Hall, Stafford	.....	G. Wermal	No date
Shop Fronts, &c. Briggate, Leeds	.....	T. Winn	do
School and Alteration of Chapel, Trimdon Grange, Durham	Mr. Longstaffe	.....	do.
Public Baths, Batley	Town Authorities	Mr. Hanstock	do.
Board Schools, St. Just, Cornwall	St.-Just-in-Roseland Sch. Bd.	Silvanus Trevail	do.
Board Schools and Residence, St. Mawes, Cornwall	do.	do.	do.
Mineral Water Factory, Cuthbert-street, Gateshead	.....	H. Gibson	do.
Weaving Shed, Warehouse, &c. Ovenden, Halifax	.....	J. F. Walsh	do.
*Supply and Fixing Gas Engine	FakenhamChurchwdns	*Official*	do.
*County Offices, Winchester	Southampton County	Jas. Robinson	do.

PUBLIC APPOINTMENT.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Inspector of Nuisances	Tendring U.R.S.A.	150*l.*	Nov. 17

Those marked with an Asterisk (*) are advertised in this Number. *Competition, p.* iv. *Contracts, pp.* iv., vi., *and* viii. *Public Appointments, p.* xx.

all will be 224 ft., and the width across transepts 100 ft. The church will provide sitting accommodation for 800, without galleries, and the cost will be 3,000*l.* The architects are Messrs. H. & D. Barclay, of Glasgow. The following are the various contractors for the new building, which is of red sandstone:—Mason, Jas. Barlas, Alexandria; joiner, John Gillies, Alexandria; plasterer, John Hutcheson, Dumbarton; slater, J. Hunter, Renton; plumber, James Coubrough, Renton; painter, Mr. Menzies, Bonhill; glaziers, Britton & Sons, Glasgow; heating, Boyd & Sons, Glasgow.

RESTORATION OF THE PARISH CHURCH, NEWPORT, SALOP.—The re-opening, after the second restoration, of the parish church of Newport, Salop, took place on the 8th ult. The second portion of the work of renovation was commenced in the autumn of last year, and has been carried out by Mr. George Ingram Muirhead, under the direction of the architect, Mr. John Norton, of London. The work comprises the north aisle, the vestry, and the chancel. In the north aisle the old brick walls have been taken down and re-built from the foundation. They have been divided into six bays by buttresses, surmounted with crocketted pinnacles, the walls being finished with battlemented parapets. In each bay is inserted a traceried triplet window, glazed with cathedral glass. The roof is framed in oak timber, and covered with lead. The new oak benches stand on a floor of pine blocks, and the passage is laid with Terrazzo marble. The same kind of flooring has been laid throughout the church. The new walls are built and faced internally and externally with Codsall stone. The ancient sepulchral arches have been recessed in the new North wall, while all the old mural monuments and inscribed brasses have been preserved and re-fixed. An oak internal porch, similar in style to that in the south aisle, has been fixed to the western door beneath the tower. A new clergy and choir vestry, measuring 20 ft. by 18 ft., has been built on the north side, with access from the chancel and organ-chamber. The roof is panelled in oak and covered with lead, while underneath is the heating-chamber containing Grundy's apparatus for warming the church. The new floor of the chancel has been graduated in three levels. Steps of Devonshire marble, with risers of marble mosaic ascend to the sanctuary, which is floored with Roman marble mosaic, with the sacred monogram and emblems. The alter daïs is of marble. A canopied double sedilia is built into the south wall, and a credence niche has been placed on the north side. The east window inserted at the time of the chancel restoration in 1866 has been replaced by a new five-light window, with traceried head, filled with glass painted by Messrs. Clayton & Bell. A small stained glass window has been placed in the north wall, over the vestry. The deal roof of the chancel has been replaced by a new oak roof, divided into four bays by moulded and carved hammer-beam trusses with angels bearing shields, and supported on carved stone corbel-heads. The altar-table, communion-rails, prayer-desk, and pulpit, are also of oak. A reredos has been erected over the altar, worked in white Caen stone. Three projecting canopied arches rest on twisted and polished alabaster columns, above which is an open arcaded gallery of trefoil arches carried by alabaster shafts, the whole being surmounted by three triangular canopies, carved with foliage, between four open niches, under which stand statuettes of the Evangelists. The back of the reredos is inlaid with enamel mosaic upon a gold ground. The super-altar is composed of a slab of St. Sylvester marble. The old altar-table has been placed in the south chancel. The pulpit stands upon a moulded base of red stone, with carved corners, and it is of light oak, with carved panels and mouldings.

WORKHOUSE LAUNDRY, BAKEWELL.—At a recent meeting of the Bakewell Board of Guardians, the recommendation of the Visting Committee, that the washhouse be rebuilt and furnished with more modern appliances, which was deferred from the previous meeting, came up for consideration.—The Rev. E. C. Parmenter (Rowsley), chairman of the Visiting Committee, moved the adoption of the proposal, and that Mr. E. M. Longsdon, of Bakewell, be instructed to prepare plans, &c. He stated that the existing building was constructed to accommodate seventy inmates, while he found that at the present time there were 140 employed there. The question was referred to a general meeting of the members.

NEW CHURCH, CHARLTON, WANTAGE.—A temporary church was built at Charlton as long back as 1850, and has done duty until now. Steps having been taken to build a permanent fabric, a commencement has been made by the erection of a chancel, organ-chamber, and vestry, leaving the old portion as a yard until the new one can be built. The chancel is of red brick, inside and out, the eastern end being apsidal, with windows in the canted sides, the central one a blank, and a three-light one in the south wall. The stalls are of English oak, and the floor-tiles were laid by Messrs. Carter & Co. A font was given by Mr. De Vitré, of Charlton House. The work has been carried out by Messrs. Gregory (mason), Whiting (carpenter and joiner), and Stroud (plumber), all of Wantage, from the designs of Mr. Withers, architect, and at a cost of 600*l.*

FIRE-BRIGADE STATION, EAST GRINSTEAD.—A fire-brigade station has recently been erected here. The new building is of red brick, with overhanging timbered gables, supported on stone figures carved by Mr. Gilbert Seale. The building has been erected from the designs and under the superintendence of Mr. H. Huntly-Gordon, of London. The builder was Mr. Charles Rice, of East Grinstead.

FOREIGN AND COLONIAL.

FRANCE.—There is talk of building a theatre at Versailles on the model of that at Bayreuth, for annual performances of Wagner's works.——At Fontenay-aux-Roses part of the new lying-in hospital has just been completed. The building, when the whole plans are carried out, will accommodate 200 patients and their infants. M. Bouvard is the architect.——There are about to be formed in Paris a certain number of "maisons maternelles" intended to afford asylum to the children of artisans and employés who, whether from illness, stoppage of work, or any other cause, are unable for the moment to have their children with them or to pay for their maintenance.——The Municipal Council of Belfort has just voted the demolition of one of the finest specimens of ancient military architecture, the Porte de France, built by Vauban in 1689. The Council has left to those who desire the preservation of the monument liberty to reconstruct it in another part of the town.——At the new Mairie of Montreux-sur-Bois important decorative work is to be carried out, which will be the subject of a public competition.——The Société Lyonnaise des Beaux-Arts will open its annual exhibition on February 28 next year. The Société des Amis des Arts at Pau will hold its twenty-eighth annual exhibition on January 15, to close on March 15.——The new Jardin des Plantes at Angers is soon to be completed. A statue of Chevreuil, the veteran chemist, who died two years ago, will be placed in it.——The committee formed for the erection of a statue to Doudart de Lagrée, the explorer, has decided that the monument should be erected on a public place in Grenoble, and that a bust in bas-relief should be placed in the commune of Saint-Vincent de Mercuze, where he was born. The statue is to be the subject of a competition restricted to sculptors born in Dauphiné.——In regard to the Mairie of Perreux, alluded to the other day, we may mention that the architect is M. Mathieu, and that M. Calinaud, one of the most able pupils of Vaudremer, has been directing the work at the new Hôtel de Ville at Vincennes, which building was, like the Mairie at Perreux, inaugurated a fortnight since.——In regard to the bringing to Paris of the waters of the Avre and the Vigne we may say that the large reception reservoir at Saint Cloud is nearly completed. It has been established on the high ground adjoining that town, at the place called "Les Villarmains." It is 107 mètres high, and includes three compartments, holding 300,000 cubic mètres of water. An aqueduct is in course of construction over the Seine, 192 mètres in length. This, which will be completed by May next, will serve the double office of a foot-bridge and a carrier of the syphon for the water. The works in Paris itself, which have been commenced, are expected also to be finished by May next.

BERLIN.—Some new arrangements are to be made for the better preservation of archæological remains in the country. Each province is to have a special curator, appointed by the Government, and standing under the authority of the "Cultus Minister." The idea is an old one, dating back to 1846; the new Minister intends taking up the matter energetically.——The Emperor, who apparently takes some interest in matters pertaining to the erection of cheap artisans' cottages in the outer suburbs of Berlin, has visited a model dwelling of this kind. The result of the inspection was an order from the Emperor for two such houses, which, when ready, he intends giving away to two deserving workmen.——On the 1st inst. the gigantic fountain which has been erected in front of the Royal Palace by the Municipality as a present to the Emperor on ascending the Throne, was unveiled with great ceremony. The sculpture on the fountain and the designs as a whole are by Rheinhold Begas. The materials used are bronze and granite. The design shows Neptune (surrounded by female figures representing the rivers Rhine, Elbe, Oder, and Vistula) mounted on a rugged centre rock. The dimensions of the fountain are colossal.——Together with the scheme of an elevated electric metropolitan railroad, the design for an underground line through the city has been placed before the Municipality.

MISCELLANEOUS.

INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.—At the recent examination held at Manchester, the following gentlemen, having satisfied the Examiners, were accorded their certificates by the Council of the Association, viz., Messrs. F. P. Dolamore, Bournemouth; W. Ingham, St. Helen's; W. Naylor, Wolverhampton; and F. Roberts, Birkenhead. The next examination will be held in London in April, 1892.

SOCIETY OF ARTS.—The arrangements for the meetings of this Society during the ensuing session have just been announced. The first meeting will

be held on Wednesday, November 18, when the opening address will be delivered by the Attorney-General, Chairman of the Council. On the following Wednesday evenings previous to Christmas papers will be read on "The Measurement of Lenses," by Prof. Silvanus P. Thompson; on "The World's Fair at Chicago in 1893," by Mr. James Dredge; on "Secondary Batteries," by Mr. G. H. Robertson; and on "Spontaneous Ignition of Coal and its Prevention," by Prof. Vivian Lewes. The first of a series of Cantor Lectures will be delivered by Mr. A. P. Laurie on "The Pigments and Vehicles of the Old Masters," and will consist of three lectures, commeneing Monday evening, November 30. Among the following courses are lectures on "Electrical Distribution," by Prof. Forbes; "The Uses of Petroleum in Prime Movers," by Prof. W. Robinson; "Mine Surveying," by Mr. B. H. Brough; and "The Chemistry and Bacteriology of the Fermentation Industries," by Dr. Percy Frankland. A special course of lectures has also been arranged, under the Howard Bequest, on "The Development and Transmission of Power from Central Stations," by Prof. W. Cawthorne Unwin," F.R.S., commencing shortly after Christmas.

THE ENGLISH IRON TRADE.—There has been but little alteration in the English iron market during the past week, the general tone being decidedly dull. Practically no business in Scotch warrants is transacted in the Glasgow warrant market, and makers' iron is still inactive. The Cleveland iron market is dull, and No. 3 G.M.B. is 6d. lower at 39s. The hematite iron trade of the north-west is inanimate. Manufactured iron continues in moderately active inquiry; but steel in the north-west is in a lifeless condition. Scotch steelworks, however, are still experiencing a brisk demand. The tinplate market remains inactive. The ship-building trade is slacker. The lock-out in the north-east coast engineering establishments is proving a serious obstacle to business, and the trade in other centres is somewhat irregular. The coal trade is fairly brisk.—*Iron*.

ELECTRIC TRACTION IN THE UNITED STATES.—Boston has taken a very leading part in the application of electricity for traction purposes in street railways, and there is now being installed in that city a plant for this purpose which is of immense proportions. The boiler-house is 160 ft. by 80 ft., and will hold twenty-four boilers which will supply steam to thirteen three-stage compound engines. These are designed to indicate no less than 2,000 horse-power each. The same company, the West-End Street Railway Company of Boston, has also a plant which will give electrical energy equal to 8,000 indicated horse-power, so that there will be a total of 34,000 indicated horse-power available for electrical traction purposes when the whole is finished. This will be sufficient to run 1,700 large cars. The generators are on the Thomson Houston system. When one remembers the long lines of cars that used to block the streets of Boston in the days of horse traction, especially at starting points, together with the tardy and irregular service, and compares that to the celerity and punctuality of a well-devised electrical system, one wonders how any people can be so benighted as to stick to the old method with its dirt, delay, and discomfort.

CHIMING CLOCK, UTTOXETER.—A large chiming clock, with two 7 ft. illuminated dials, has just been erected in this church as a memorial to the late Mr. Charles Bunting, who was for many years churchwarden. The entire cost has been about 260*l*. Messrs. John Smith & Sons, Midland Clock Works, Derby, have carried out the work.

CO-OPERATIVE EXCURSIONS TO THE CHICAGO EXHIBITION.—The Committee of the Polytechnic Institution, Regent-street, London, have entered into a contract with the Inman Steamship Company for arranging cheap trips for working men to the Chicago Exhibition. Fast steamers will leave Liverpool weekly during the months of June, July, and early part of August, 1893, and the whole tour will be able to be accomplished within one month. The proposed arrangements are that two days shall be spent in New York; a visit to Philadelphia and Washington will also be made, proceeding from thence to Chicago, where each party will remain for six or seven days. The return journey will be continued through Buffalo to Niagara, the journey back to New York being taken down the Hudson River. The Committee hope that the whole round excursion, including accommodation for the period, will not exceed 25 guineas, which is only slightly above the fare for the ocean journey alone during the season by the above steamers. Arrangements have been made thus early to enable those who desire to take part to put by so much per week towards the required amount; also to enable many who have, as a rule, but a fortnight's holiday, to forego their holiday next year, and get a special holiday of one month in 1893. Already over half the places have been applied for.

RAILWAY DEVELOPMENT IN FINLAND.—From a report just issued, it appears that railways have made great progress in Finland of late years. The first line of railway, Helsingfors-Tavastehus, 61 miles, was opened in 1862, and now the country possesses over 800 miles of railway, whilst some 200 miles more are in course of construction. The expenditure thus entailed is a heavy one for a poor country like Finland. Up to the present, about 3,500,000*l*. has been expended on railways, the average cost per kilomètre being 3,900*l*.; and in the current financial year 395,000*l*. more are to be expended, of which 34,000*l*. will be for rolling-stock. Last year the gross earnings of the Finnish lines amounted to 474,000*l*., as against 418,000*l*. in 1889. The number of passengers carried was 2,520,000, and the quantity of goods 924,350 tons. There were 31 accidents, 22 being fatal.

MEETINGS.

SATURDAY, NOVEMBER 7.

Sanitary Inspectors' Association.—The Annual Address will be delivered by Mr. Hugh Alexander, Chairman. 6 p.m.

MONDAY, NOVEMBER 9.

Surveyors' Institution—Opening Meeting of Session, 1891-92. Address by the President, Mr. R. C. Driver. 8 p.m.

TUESDAY, NOVEMBER 10.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. J. F. J. Sykes on "Objects and Methods of Inspection." 8 p.m.

Sheffield Society of Architects and Surveyors.—Mr. E. M. Gibbs on "Architectural Education in Sheffield." 8 p.m.

Royal Society of Antiquaries of Ireland.—Meeting in Dublin.

WEDNESDAY, NOVEMBER 11.

London Society for the Extension of University Teaching (Chelsea Centre).—Mr. A. H. Fison, D.Sc., on "Electricity and its Modern Applications." VI. 8.15 p.m.

THURSDAY, NOVEMBER 12.

Institution of Electrical Engineers.—Captain H. R. Sankey and Mr. F. V. Andersen on "The Standard Volt and Ampère Meter used at the Ferry Works, Thames Ditton. 8 p.m.

FRIDAY, NOVEMBER 13.

Architectural Association.—Mr. C. H. Brodie on "Frame Houses." 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—(1) Mr. H. E. Stilgoe on "The Works on the Barking and Pitsea Extension Railway." (2) Mr. H. Bucknall on "Rail-Pile Bridges in Ceylon." 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor A. Bostock Hill on "Trade Nuisances." 8 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

16,695.—OPEN AND CLOSE GRATES AND RANGES: *W. H. Wilson.*—This patent refers to a method of converting an open grate into a close range, with a fire-plate having a fuel opening and a shallow front plate to rest on the drop or top bar also a deep plate on one side only extending down below this bar.

16,736.—AUTOMATICALLY CONTROLLING VENTILATION: *J. Gratton.*—The principle of expansion by heat and electricity is utilised by this patentee to control the valves of heating apparatus.

19,534.—FIRE GRATES: *J. B. Lupton.*—In order to improve the combustion and to economise fuel the bars are flat and placed at an angle in the grate so as form a kind of louvre, and in some cases the bars are corrugated.

20,198.—STOVES: *H. Heim.*—This inventor claims that a vertical, instead of a horizontal, arrangement of the flues gives greater heating surface; and the gases are also conducted into heating chambers.

10,199.—WATER-WASTE-PREVENTING CISTERNS: *J. Smeaton.*—This invention consists of an arrangement of floating balls and guide and slide, which opens the syphon and regulates the flow.

11,410.—EXHAUST VENTILATOR: *D. Hasselman.*—This refers to what is claimed as an improved form of ventilator, consisting of two hollow cones, the lower one being inverted and provided with an annular ring or gallery near the outer edge. An inlet-pipe is inserted in the lower of the two cones, and a vacuum of greater dimensions than usual is formed in the chamber made by the two cones.

14,829.—VENTILATING TUNNELS: *M. Saccardo.*—According to this invention, the tunnels are ventilated by forming chambers during their construction, and then forcing in divergent jets of air, which produce between the front and back parts a difference in pressure capable of imparting to the air in the tunnel the necessary movement for the desired ventilation.

NEW APPLICATIONS FOR PATENTS.

October 19.—17,846, J. Dobson, Drain Traps.—17,854, J. Green and G. Meech, Securely Fastening such Windows or Doors that work in Sliding Frames.—17,878, A. Schmidt, Window Frames.—17,881, C. Shoppee, Facing Bricks.—17,882, W. Lindsay, Window Sashes.—17 883, W. Morton, Nails, &c.—17,891, A. Emery, Sash Fastener.—17,893, R James, Stone Saw.

October 20.—17,919, F. Smith, Stair-tread.—17,943, A. Chadbourne, Water-closets, &c.—17,946, J. Lewis, Wrought Window Frame.

October 21.—18,007, G. Goldsmith and others, Ventilator.—18,047, J. Dean and G Smith, Water-closets.—18,077, W. Lindsay, Window Sashes.—18,085, A. Föppl, Roofs.—18,087, P. Morgan, Window Sash-lines.

October 22.—18,127, J. Lillington, Tool for Clamping Timber.—18,162, H. Gover, Electrical Lamp and other Fittings.—18,173, S. Hellyer, Water-closets and other Sanitary Appliances.

October 23.—18,218, W. Thompson, Carving Machines.—18,228, A. Churchman and W. Degerdon, Portable Bench for Wood and Metal Workers.—18,245, L. Seager, Machines for Making Bricks, &c.—18,247, W. Thompson, Nail-driving Tool.

October 24.—18,269, F. Lavender, Adjustable Corner Cramp.—18,281, C. D'Enghien and others, Kilns or Ovens for Firing Terra-Cotta, &c.—18 295, O. Smith and C. Zeidler, Hinge.—18,310, E. Casper and W. Sowerby, Paint, &c.—18,311, L. Seager, Window Sashes, &c.—18,338, W. Orr, Girders and Beams for use in Building Purposes.—18,340, W. Pattenden and A. Rindesland, Window Sashes and Frames.

PROVISIONAL SPECIFICATIONS ACCEPTED.

13,852, W. Brett, Sashes for Window and other purposes.—15,163, J. Jones, Chisels and Gouges as used by wood-working artisans.—15,332, A. Manson & Son, Attachment for Wood-turning and other Wood-working Machines for the production of Spiral and other Mouldings.—15,988, E. Wright, Fireplaces and Cooking Ranges.—16,275, E. Taylor and H. Cliff, Door-stops, or Devices for holding doors open.—16,350, J. Simpson Blake, Stone-breaking Machine.—16,383, W. Trubshaw, Door Furniture.—16,410, G. Harrison, Ventilation.—16,692, J. Davies, Bricks, &c.—16,705, E. Blake and others, Glazing Roofs, &c., especially applicable to Vertical Glazing.—16,851, R. Uhl, Mitring Benches or Machines.—17,135, A. Hall, Concrete and similar Slabs, or Blocks for Paving and other purposes, and in means therefor.—17,377, W. Taylor, Sand Moulding Brick Machines.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

16,883, R. Allen and J. Evans, Clamping and Lifting Apparatus, specially applicable for laying Parquet Flooring.—19,014, D. Gill, Water-closet Apparatus.—20,814.—F. Clarke, Chimney-pots.—3,458, C. Spinks, Trapper Plane for Turning Wood from the Square, either straight, tapered, or hollow tapered.—15,883, S. Johnson, Sash and Axle Pulleys.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

OCTOBER 26.—By *Weatherall & Green*: 147, Albion-rd., Stoke Newington, f., r. 60*l*., 750*l*.—By *Bean, Burnett, & Co.*: 75, Wood-vale, Dulwich, u.t. 84 yrs., g.r. 10*l*., r. 50*l*., 450*l*.; 16 and 18, Malva-rd., Wandsworth, u.t. 71 yrs., g.r. 6*l*., r. 52*l*., 280*l*.; 136, Queen's-rd., Bayswater, u.t. 47 yrs., g.r. 7*l*., r. 63*l*., 605*l*.; a plot of freehold land, Upper Down's-rd., Epsom, 175*l*.—By *Segrave & Taylor*: F.g.r. of 10*l*., "Wood Wharf," Greenwich, with reversion in 62 yrs., 175*l*.; High-st., Plaistow, c.g.r. of 30*l*., with reversion in 45 yrs., 410*l*.; f.g.r. of 13*l*., Gilham's-pl., Rotherhithe, with reversion in 74 yrs., 230*l*.; f.g.r. of 7*l*., with reversion in 57 yrs., 122*l*.; 150, Rotherhithe-st., u.t. 79 yrs., g.r. 15*l*., r. 28*l*., 85*l*.

OCTOBER 27.—By *W. & F. Houghton*: 12, 14, and 16, Grosvenor Rise East, Walthamstow, f., 660*l*.; 20 to 30 (even), Grosvenor Rise East, f., 1,595*l*.; Eden-rd., a plot of freehold land, 100*l*.; Wingfield-rd., a plot of freehold land, 400*l*.; Grosvenor Rise East, "Grosvenor Cottage," f., 100*l*.; 51 and 53, Beulah-rd., u.t. 72 yrs., g.r. 5*l*. r. 48*l*., 505*l*.; 21, St. Mary's-rd., Willesden, u.t. 73 yrs., g.r. 5*l*., 310*l*.—By *Sherrin & Coltman*: 198, Seymour-st., Camden Town, u.t. 52 yrs., g.r. 12*l*., r. 75*l*., 750*l*.; 5, Harrington-sq., u.t. 52 yrs., g.r. 13*l*., r. 75*l*., 750*l*.; "The Moat House," Harrow-on-the-Hill, f., r. 160*l*., 2,350*l*.; 1, 2, and 3, Byron-ter., f., r. 36*l*., 450*l*.; "Simpson House," near Bletchley, f., sold before auction; "The Duke of Bedford" public-house, Seymour-st., Camden Town, sold before auction.—By *C. & H. White*: 64 and 70 (even), Southville, Wandsworth-rd., f., r. 150*l*., 1,395*l*.; Cornwall-rd., Waterloo-rd., &c., c.g.r. of 12*l*., with reversion in 23 yrs., 640*l*.; 16, George-st., Lambeth, c., r. 25*l*., 350*l*.; 6 and 7, James-st., f., r. 40*l*. 6s., 320*l*.; 63, James-st., f., r. 28*l*. 12s., 230*l*.; 70 to 73, James-st., f., r. 117*l*., 950*l*.

OCTOBER 28.—By *E. & F. Swain*: 5, Durham-pl., Campden-hill, u.t. 58 yrs., g.r. 5*l*., 450*l*.; 141, Elgin-cres., Notting-hill, u.t. 48 yrs., g.r. 8*l*. 10s., r. 41*l* 10s., 250*l*.—By *R. Tidey & Son*: 71 to 87 (odd), Holly-st., Dalston, u.t. 25 yrs., g.r. 16*l*., 1,105*l*.—By *J. A. Smith*: 1 and 3, Elm-grove, Hammersmith, u.t. 49 yrs., g.r. 10*l*., 540*l*.; 1 to 15, Campbell-st., and 1 to 4, Campbell-pl., c., 2,210*l*.; 26, Brandenburg-rd., Chiswick, u.t. 72 yrs., g.r. 7*l*. 7s., r. 42*l*., 300*l*.; 8, Rosenau-cres., Battersea, u.t. 94 yrs., g.r. 7*l*., r. 38*l*., 360*l*.

OCTOBER 29.—By *Newbon & Co.*: 174, Portland-rd., Norwood, u.t. 73 yrs., g.r. 5*l*. 5s., 190*l*.; 59 and 61, Denmark-rd., u.t. 76 yrs., g.r. 9*l*. 13s., 250*l*.; 2 and 4, Alexandra-rd., Selhurst, u.t. 75 yrs., g.r. 8*l*. 16s., 235*l*.; 74, Castle-st., Battersea, u.t. 76 yrs., g.r. 5*l*. 5s., 195*l*.; 63 and 65, Heaver-rd., u.t. 76 yrs., g.r. 5*l*., 360*l*.—By *Relph & Sons*: "Thanet Villa," Bexley Heath, f., r. 40*l*., 450*l*.; 1 to 3, Melrose-ter., f., r. 80*l*., 900*l*.; a plot of freehold land, 1a. 2r. 25p., Gravel-hill-rd., 340*l*.—By *Briant & Son*: No. 8, The Terrace, Kennington, u.t. 29 yrs., g.r. 9*l*. 4s., r. 55*l*., 435*l*.; 82 and 92, Lansdowne-rd., Lambeth, u.t. 51 yrs., g.r. 12*l*., r. 79*l*., 720*l*.; No. 57, Tulse Hill, u.t. 38 yrs., g.r. 14*l*. 15s., 600*l*.—By *Physick & Lowe*: "Lawn House," Hampstead-sq., f., 1,950*l*.—By *H. Griffin*: 99 and 101, Bridge-rd. West, Battersea, f., r. 52*l*., 500*l*.; 3 and 4, Warsill-st., u.t. 74 yrs., g.r. 9*l*., r. 62*l*. 8s., 335*l*.; 31, Tyneham-rd., u.t. 81 yrs., g.r. 6*l*. 10s., r. 50*l*., 430*l*.—By *Phillips, Lea, & Davies*: The lease of 149 and 151, Bancroft-rd., Mile-end, and plant, &c., u.t. 17½ yrs., r. 90*l*., 270*l*.—By *Messrs. Leage*: F.g.r. of 12*l*. 5s., reversion in 54 yrs., York-rd., Wandsworth, 347*l*.—By *A. J. Sheffield*: 6 and 51, Benledi-st., Poplar, u.t. 82 yrs., g.r. 8*l*. 10s., r. 62*l*., 455*l*.; 26 and 28, Aberfeldy-st., u.t. 65 yrs., g.r. 8*l*., 375*l*.; 53 to 59 (odd), Blair-st., u.t. 82 yrs., g.r. 15*l*., r. 125*l*., 880*l*.; 60 to 70 (even), Culloden-st., u.t. 82 yrs., g.r. 18*l*. 15s., 1,150*l*.; the lease of 62, Crisp-st., u.t. 14 yrs., r. 52*l*. 10s., 65*l*.—By *Stimson & Sons*: 11 to 19 (odd), Elmira-st., Lewisham, f., r. 79*l*. 6s., 660*l*.; "The Mount-pleasant Dairy," George-lane, f., r. 25*l*. 600*l*.; 109 to 117 (odd), Church-st., Deptford, f., r. 78*l*., 350*l*.; 7 to 10, Nunhead-cres., Peckham, u.t. 13 yrs., g.r. 28*l*., r. 126*l*., 220*l*.; 28 and 30, Wenlock-st., Hoxton, u.t. 51 yrs., g.r. 8*l*. 8s., r. 80*l*., 745*l*.; 1 and 3, Plaistow-grove, West Ham, f., r. 35*l*. 2s., 250*l*.; 1 to 5, Oliver-ter., Leyton, f., r. 90*l*., 780*l*.; 65 to 71 (odd), Avenue-rd., Camberwell, f., r. 65*l*., 295*l*.; 8 to 16 (even), Toulon-st., f., 305*l*.; 1 to 8, Lant-pl., 1 to 9, 17, 18 and 19, Grotto-pl., and 1 to 5, Lower Grotto-pl., Southwark, f., r. 421*l*. 4s., 1,720*l*.; 4, 6, and 8, Marshalsea-rd., f., 2,000*l*.

OCTOBER 30.—By *R. Reid*: 55, Greek-st., Soho, f., 1,350*l*.—By *Field & Sons*: 15, 17, and 19, Walsingham-rd., Clapton, f., r. 78*l*., 1,050*l*.; 68, 70, and 72, Pomeroy-st., and 1 to 6, Alfred-pl., Old Kent-rd., f., 910*l*.—By *Horne, Son, & Eversfield*: No. 77, Upper Thames-st., f., r. 770*l*., 11,500*l*.; Southwick-pl., Hyde-pk., l.g.r. of 67*l* 10s., u.t. 44 yrs., g.r. 2*l*., 1,210*l*.; Southwick-cres., l.g.r. of 60*l*., u.t. 44 yrs., no g.r., 1,110*l*.; Radnor-pl., l.g.r. of 22*l*. 10s., u.t. 44 yrs., no g.r., 450*l*.; Prince's-sq., l.g.r. of 84*l*., u.t. 60 yrs., g.r. 2*l*., 1,640*l*.; Acacia-rd., St. John's Wood, l.g.r. of 10*l*. 10s., u.t. 43 yrs., 200*l*.

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. *ton	9/0/0	0/0/0
Teak, E.I... load	8/10/0	14/0/0
Sequoia, U.S.ft.cu.	2/3	3/0
Ash, Canada load	2/5/0	4/0/0
Birch, do.	2/10/0	4/5/0
Elm, do.	3/5/0	4/15/0
Fir, Dantsic, &c.	2/0/0	3/10/0
Oak, do.	2/10/0	4/10/0
Canada.....	4/17/6	6/10/0
Pine, Canada red	2/10/0	3/10/0
Do, yellow	2/0/0	5/0/0
Lath, D'ntsic, fath	5/0/0	6/0/0
St. Petersburg	5/0/0	7/0/0
Deals, Finland, 2nd & 1st std 100	8/0/0	10/10/0
Do, 4th & 3rd..	7/10/0	8/10/0
Do. Riga	8/10/0	8/0/0
St. Petersburg, 1st yellow ..	10/10/0	14/10/0
Do. 2nd yellow	8/10/0	9/10/0
Do. white	7/0/0	10/10/0
Swedish	7/10/0	15/10/0
White Sea	8/10/0	17/10/0
Canada, Pine 1st	13/0/0	25/0/0
Do. do. 2nd....	9/0/0	16/10/0
Do. do. 3rd, &c.	6/10/0	10/0/0
Do. Spruce. 1st	8/10/0	10/10/0
Do. do. 3rd & 2nd.....	6/0/0	7/15/0
New Brunswick	5/10/0	7/10/0
Battens, all kinds	3/10/0	15/10/0
Flooring Boards, sq., 1 in. prep. 1st	0/8/0	0/14/0
Do. 2nd.....	0/7/6	0/11/0
Other qualities	0/5/0	0/8/0
Cedar, Cuba ..ft.	/4	/4½
Honduras, &c.	/4	/4½
Mahogany, Cuba.	/4½	/0
St. Domingo, cargo av	/4½	/6½
Mexican do. do	/4	/5
Tobasco do. do	/5½	/7
Honduras do..	/5½	/6½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	10/0/0	20/0/0
Bahia	9/0/0	18/0/0
Satin, St. Domingo . ....ft.	0/0/9	0/1/0

TIMBER (*continued*).		
Satin, Porto Rico	0/0/10	0/1/6
Walnut, Italian..	0/0/3½	0/0/7
METALS.		
IRON—Pig, in Scotland .....ton	47/0/0	47/1/0
Bar, Welsh, in London.....	6/0/0	6/2/6
Do. do. at works in Wales	5/10/0	5/12/6
Do. Staffordshire, in London	6/10/0	6/15/0
COPPER—British, cake and ingot	50/0/0	£2/0/0
Best selected ..	52/0/0	53/10/0
Sheets, strong..	61/0/0	62/0/0
Chili, bars	46/10/0	46/17/6
YELLOW METAL lb.	0/0/5½	0/0/6
LEAD — Pig, Spanish....ton	11/16/3	0/0/0
English, com. brands	12/0/0	0/0/0
Sheet, English, 3 lbs. per sq. ft. and upwards ..	13/10/0	0/0/0
Pipe	14/0/0	0/0/0
ZINC — English sheet .....ton	26/10/0	0/0/0
Vieille Montagne.....	27/0/0	0/0/0
TIN—Straits	89/10/0	90/0/0
Australian	90/5/0	90/15/0
English Ingots	93/0/0	94/0/0
OILS.		
Linseed .....ton	19/15/0	20/0/0
Cocoanut, Cochin	28/0/0	0/0/0
Do. Ceylon	24/10/0	0/0/0
Palm, Lagos	24/10/0	25/0/0
Rapeseed, English pale	31/0/0	0/0/0
Do. brown	29/10/0	0/0/0
Cottonseed ref...	20/0/0	0/0/0
Oleine	0/0/0	0/0/0
Lubricating, U.S.	4/10/0	5/10/0
Do. refined	6/0/0	14/0/0
TAR—Stockholm barrel	0/19/6	0/0/0
Archangel	0/12/0	0/12/6

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]

ALTRINCHAM.—For the construction of a 12-in. pipe sewer Knutsford Inferior, for the Union Rural Sanitary Authority. Mr. J. McKenzie, surveyor, Broomfield-road, Hale, Altrincham :—
Wm. Barton, Altrincham..... £160 0 0

BROMLEY (London).—For sundry additions, alterations, and repairs (including works required by the London County Council and external painting) at the Vestry-hall, Bow-road, E., for the Churchwardens and Overseers. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. Quantities by Mr. C. W. Heward :—

Pearce & Co.....	£890 0 0	J. C. Edmunds	£788 0 0
Neil & Co.....	871 10 0	G. White & Son	779 0 0
Jackson & Jennings ..	820 0 0	J. Holland, 163, Brunswick-road, Poplar*..	748 0 0
J. & H. Cocks	797 0 0	A. Martin	695 10 6
Limn & Son	795 0 0		
W. Johnson & Co.	793 0 0		

* Accepted.
[Architects' estimate, £750.]

HADLEIGH (Essex).—For the erection of piggery buildings, at the Salvation Army Farm Colony, for General Booth. Mr. A. Gordon, architect, 101, Queen Victoria-street, E.C. :—

W. Neil	£828 0	French & Ellwood	£750 0
Coxhead	797 0	E. Good	743 0
G. H. Martin & Co.	793 0	H. Potter*	688 10
A. Ansell	790 0		

* Accepted.

LONDON.—For the erection of a factory at Hanlon-street, Grove-street, Deptford, for Messrs. A. C. Scott & Co., Limited. Messrs. Tolley & Son, architects. Quantities by Messrs. Parr & Son :—

	By March 1.	By March 25.
Falkner	£6,489	£6,339
Hart Bros.	5,884	5,784
Croaker	5,768	5,668
Gould & Brand	5,077	4,977
Bulled & Co.	4,997	4,949
Jerrard.....	4,983	—
Marriage	4,980	4,930*

* Accepted.

LONDON.—For repairs to two houses, Grove-street, Deptford, for Messrs. A. C. Scott & Co., Limited. Messrs. Tolley & Son, architects :—

Josolyne, Young, & Co. ..	£268 0	Falkner	£173 0
Jerrard	182 0	Jewell	162 0
Marriage	180 10	Croaker (accepted)	155 0

LONDON.—For repairs to No. 41, King Henry's-road, South Hampstead, for Mr. Jackson W. Smart. Messrs. Tolley & Son, architects :—

Rubardt & Son	£262	Bence	£250
Subey	260	Marriage	245
Carter.....	258		

LONDON.—For the erection of printing premises in Bream's-buildings, E.C., for Messrs. Francis & Co. Mr. William C. Street, architect. Quantities supplied by Messrs. Pryce, Cuxson, & Leigh, surveyors :—

S. & W. Pattinson	£4,241	Holloway Bros.	£3,980
W. Downs	4,100	Dove Bros.	3 875
Higgs & Hill	4,094	B. E. Nightingale	3,856
C. Ll & Sons	4,040		

LONDON.—For rebuilding No. 5, Crooked-lane, E.C. Mr. H. Huntly Gordon, architect. Quantities by Mr. Ernest S. Gale, F.S.I :—

Teuton, Son, & Younger ..	£1,050	H. & F. H. Higgs	£920
E. Lawrence & Son	1,050	Patman & Fotheringham ..	911
D. Chart-ris.....	956	John Barker & Co.	897
Brass & Sons.....	923	Wm. Oldrey & Co.	835

LONDON.—For alterations to factory in South-row, Kensal-town, for Mr. W. Davis. Messrs. New & Son, architects :—

Wm. Oldrey & Co.....	£997	Teonant & Co.....	£828
E. L. Nunn	984	F. Mark	790
Phillips & Sons	849		

NEWCASTLE-ON-TYNE.—For the erection of a saw-mill, stabling, and offices, for Mr. John Slater. Mr. Thomas Reay, architect, 95, Pilgrim-street, Newcastle-on-Tyne. Quantities supplied by the architect :—

Thomas Bruce	£3,335 5 0	J. & W. Lowry	£2,380 0 0
George Scott & Son..	2,500 0 0	Haswell & Waugh ..	2,349 0 0
Joseph Elliot	2,480 0 0	H. Brown & Co.	2,335 0 0
T. & R. Lamb	2,471 13 10	W. & W. Scott.....	2,200 0 0
Robert Veitch	2,457 14 9	Jno. J. Simpson	2,144 9 3

WALTHAMSTOW.—For the erection of a new police-station, at Walthamstow, for the Receiver for the Metropolitan Police District. Mr. John Butler, Architect. Quantities by Mr. W. H. Thurgood :—

W. Gardener	£5,005	J. T. Chappell	£4,687
Hart Bros.....	4,994	Grover & Son	4,643
Higgs & Hill.....	4,980	Scrivener & Co.	4,627
H. L. Holloway	4,770	Lathey Bros.	4,500
Willmott & Sons.....	4,750	J. Morter	4,457
Garlick & Horton	4,696		

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office, 19s. per annum (or 4s. 9d. per quarter), can ensure receiving "The Builder" by *Friday Morning's post.*

TO CORRESPONDENTS.

W. P. B.—H. H.—G.—J. P. N.—W. H. W. (the point has been referred to frequently in our columns).—E. H. S.—S. Bros.—R. M.—A. E. P. (should have sent amount).

All statements of facts, lists of genders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

W.H. Lascelles & Co.

121, BUNHILL ROW, LONDON, E.C

Telephone No. 270.

HIGH-CLASS JOINERY.

LASCELLES' CONCRETE.

Architects' Designs are carried out with the greatest care.

CONSERVATORIES
GREENHOUSES,
WOODEN BUILDINGS,

Bank, Office, & Shop Fittings

CHURCH BENCHES & PULPITS

ESTIMATES GIVEN ON APPLICATION.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, and New Zealand, 26s. per annum. To India, China, Ceylon, &c. 30s. per annum. Remittances payable to DOUGLAS FOURDRINIER, Publisher, No. 46, Catherine-street W.C.

FLUATE,

FOR HARDENING AND PRESERVING STONE.

Apply to The BATH STONE FIRMS (LD.), Bath.

DOULTING FREESTONE.

THE CHELYNCH STONE. The stone from these quarries is known as the "Weather Beds," and is of a very crystalline nature, and undoubtedly one of the most durable stones in England.

THE BRAMBLEDITCH STONE. Is of the same crystalline nature as the Chelynch Stone, but finer in texture, and more suitable for fine moulded work.

Prices, and every information given, on application to CHARLES TRASK & SONS, Doulting, Shepton Mallet.

London Agent—Mr. E. A. WILLIAMS, 16, Craven-street, Strand, W.C. [ADVT.

HAM HILL STONE.

The attention of Architects is specially invited to the durability and beautiful COLOUR of this material. Quarries well opened. Quick despatch guaranteed. Stonework delivered and fixed complete. Samples and estimates free. Address, The Ham Hill Stone Co., Norton, Stoke-under-Ham, Somerset. London Agent: Mr. E. A. Williams, 16, Craven-st., Strand, W.C. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [ADVT.

SPRAGUE & CO.'S

INK-PHOTO PROCESS,

4 & 5, East Harding-street,

Fetter-Lane, E.C. [ADVT.

MICHELMORE & REAP,

Manufacturers of

COLLINGE'S PATENT HINGES, LEVER, SCREW, & BARREL BOLTS,

Self-Acting "FALL DOWN" GATE STOPS, and IMPROVED GATE FITTINGS of every description

36A, BOROUGH ROAD,

PRICES REDUCED. LIST SENT ON APPLICATION. LONDON, S.E.

W.E. CONSTABLE & CO

Granite and Limestone Quarry Owners,

TAR PAVING, ROAD, & GENERAL CONTRACTORS,

Are prepared to supply in any quantities, direct from their own Scotch Quarries, Kirkcudbrightshire, Granite Blocks up to 20 tons each, for Monumental work, &c.; also Setts or Kerbing, Channelling, &c. Lime and Limestone from their Matlock Bridge Quarries, Derbyshire.

Proprietors of the well-known Patent Limestone Tar Asphalte Paving.—Laid Complete or Materials supplied.

Offices: MONUMENT CHAMBERS, CITY.

TWELVE GOLD AND SILVER MEDALS AWARDED.

ZINC AND COPPER ROOFING.

F. BRABY & CO.

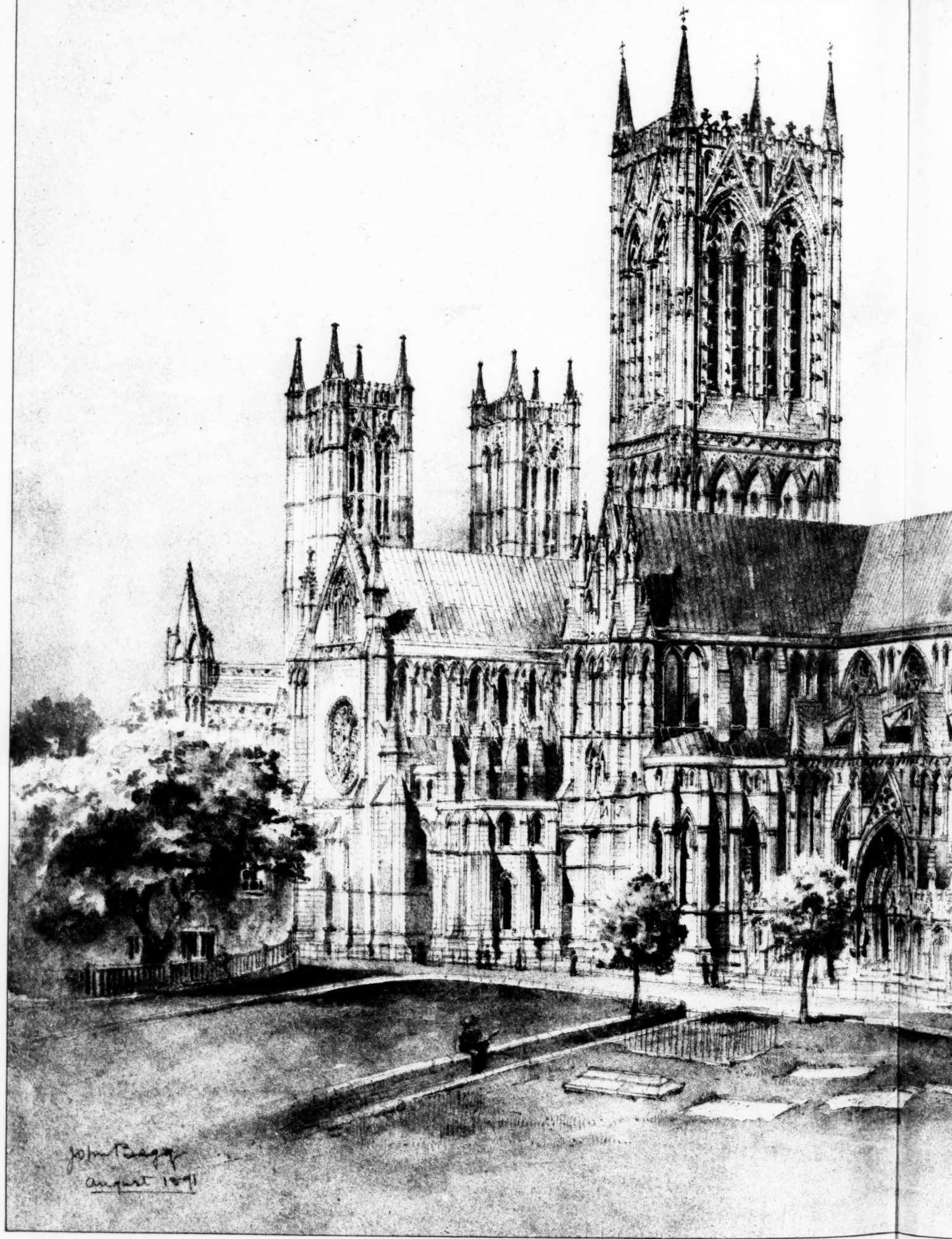
LONDON. ✦✦ LIVERPOOL. ✦✦ GLASGOW.

352 to 362, Euston-road. 6 and 8, Hatton Garden. 47 and 49, St. Enoch-square.

VIEILLE MONTAGNE SOLE MANUFACTURING AGENTS.

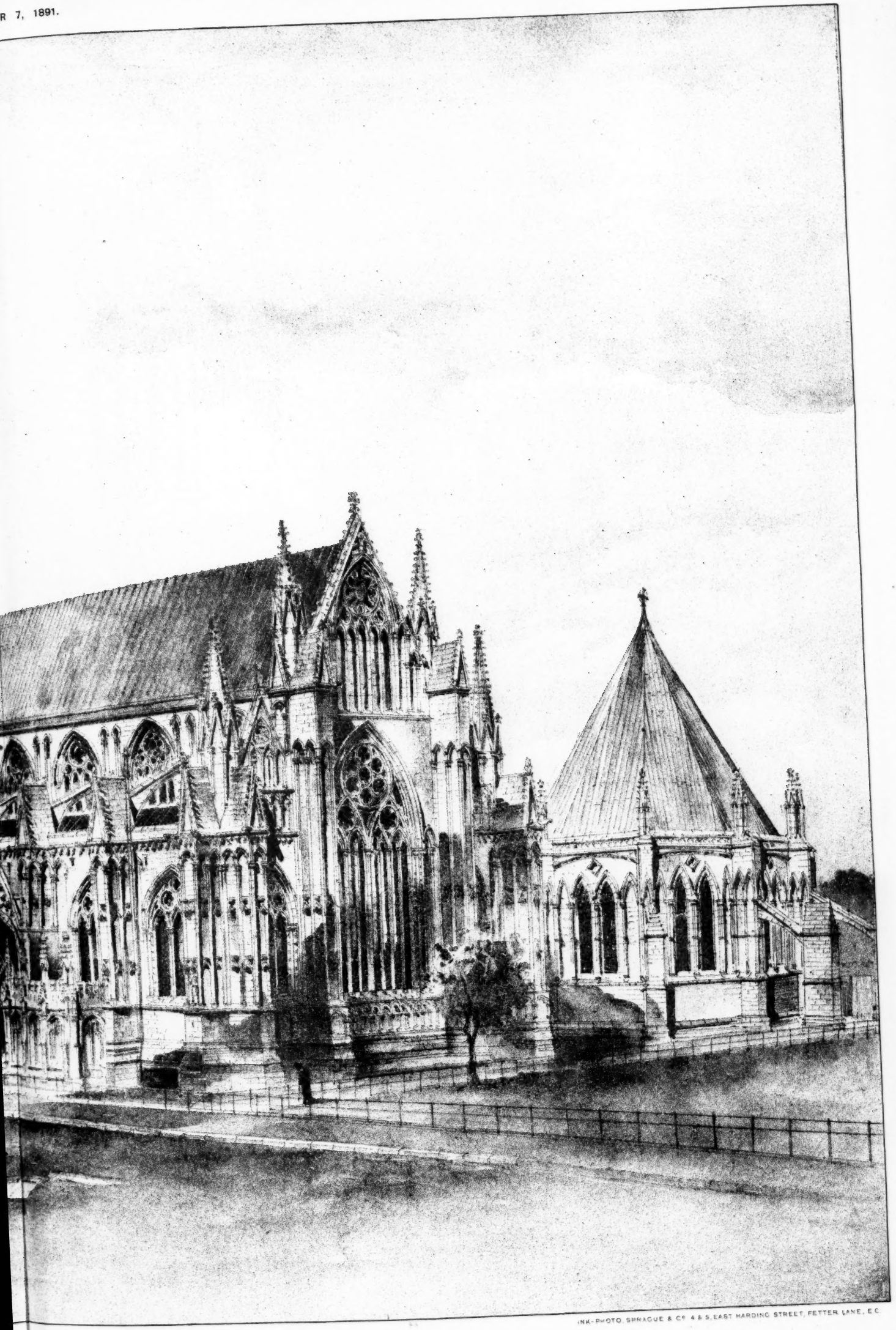
NO SOLDER. NO EXTERNAL FASTENINGS.

Particulars on Application Chief Offices:—Fitzroy Works, EUSTON ROAD, LONDON, N.W.



Cathedrals of England a

No. 11. LINCOLN: FROM THE SOUTH-EAST.—



INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

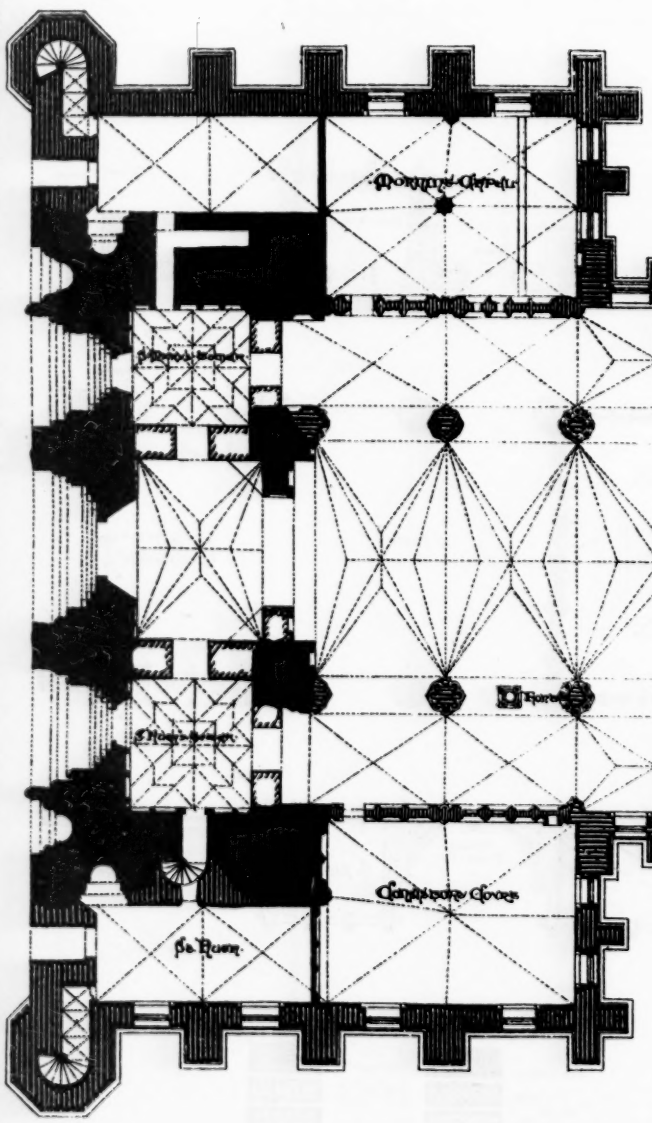
ngland and Wales.

UTH-EAST.—Drawn by Mr. John Begg.

A Plan of the Cathedral Church of Saint Mary of Lincoln A.D. 1881.

Monuments.

1. Easter Sepulchre.
2. Monument of Katherine Swinford & the Countess of Westmoreland.
3. Bishop Burghersh & Sir Robt. do:
4. Sir Bartholemew Burghersh.
5. Prior Wimbush & Sir Nicholas Cantilupe.
6. Bishop Fleming.
7. Bishop Russell.
8. Bishop Longland.
9. Sir G. Taylboys.
10. Bishop Kaye.



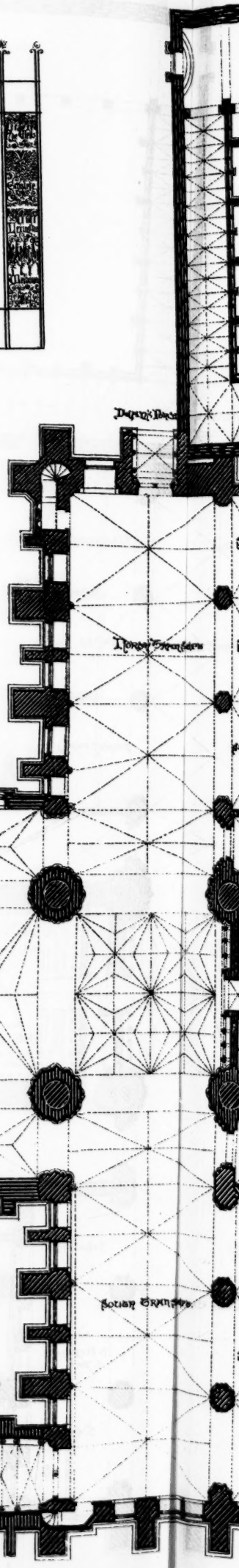
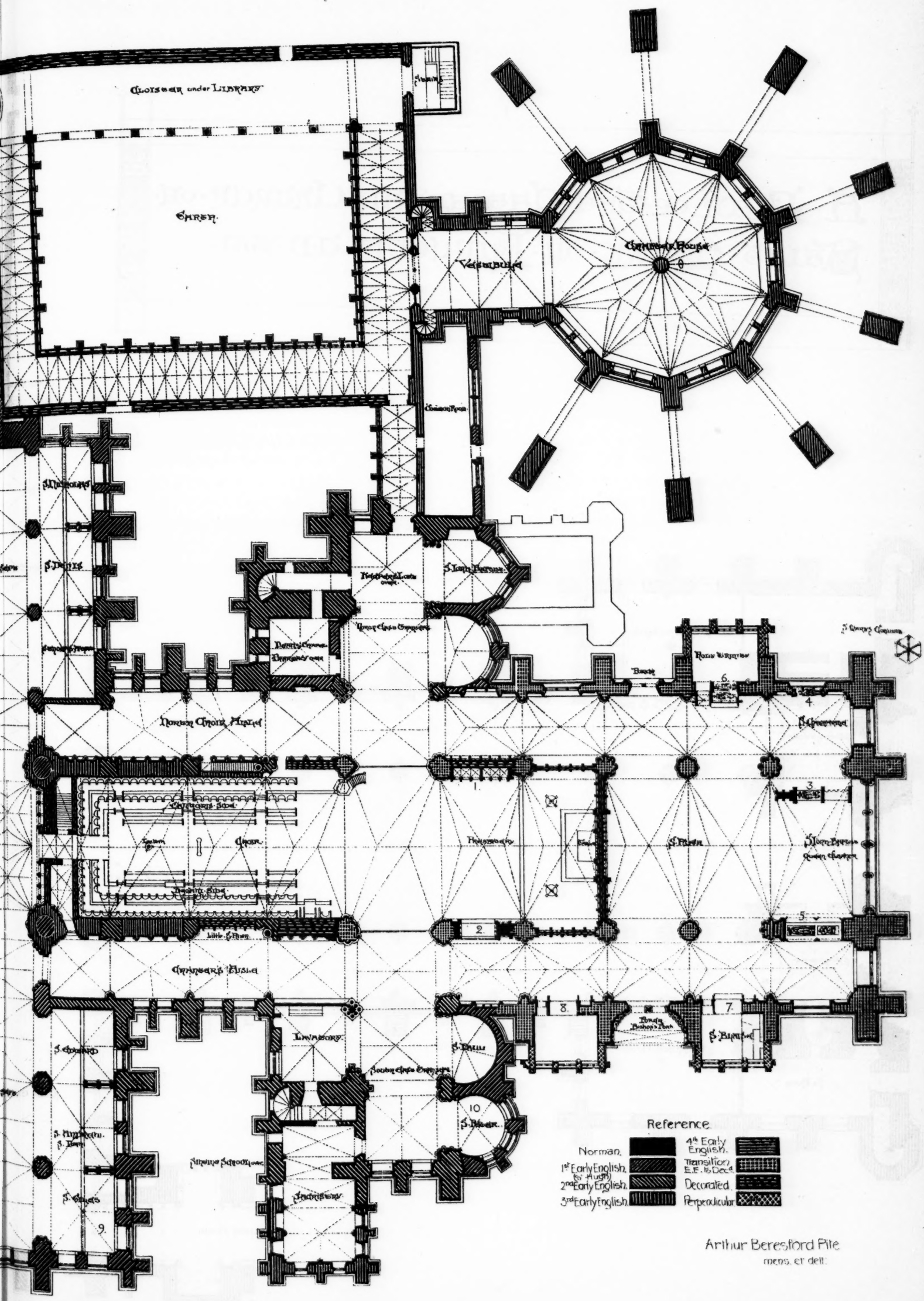


PHOTO-LITHO SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.



Arthur Beresford Pite
mens. et delt.

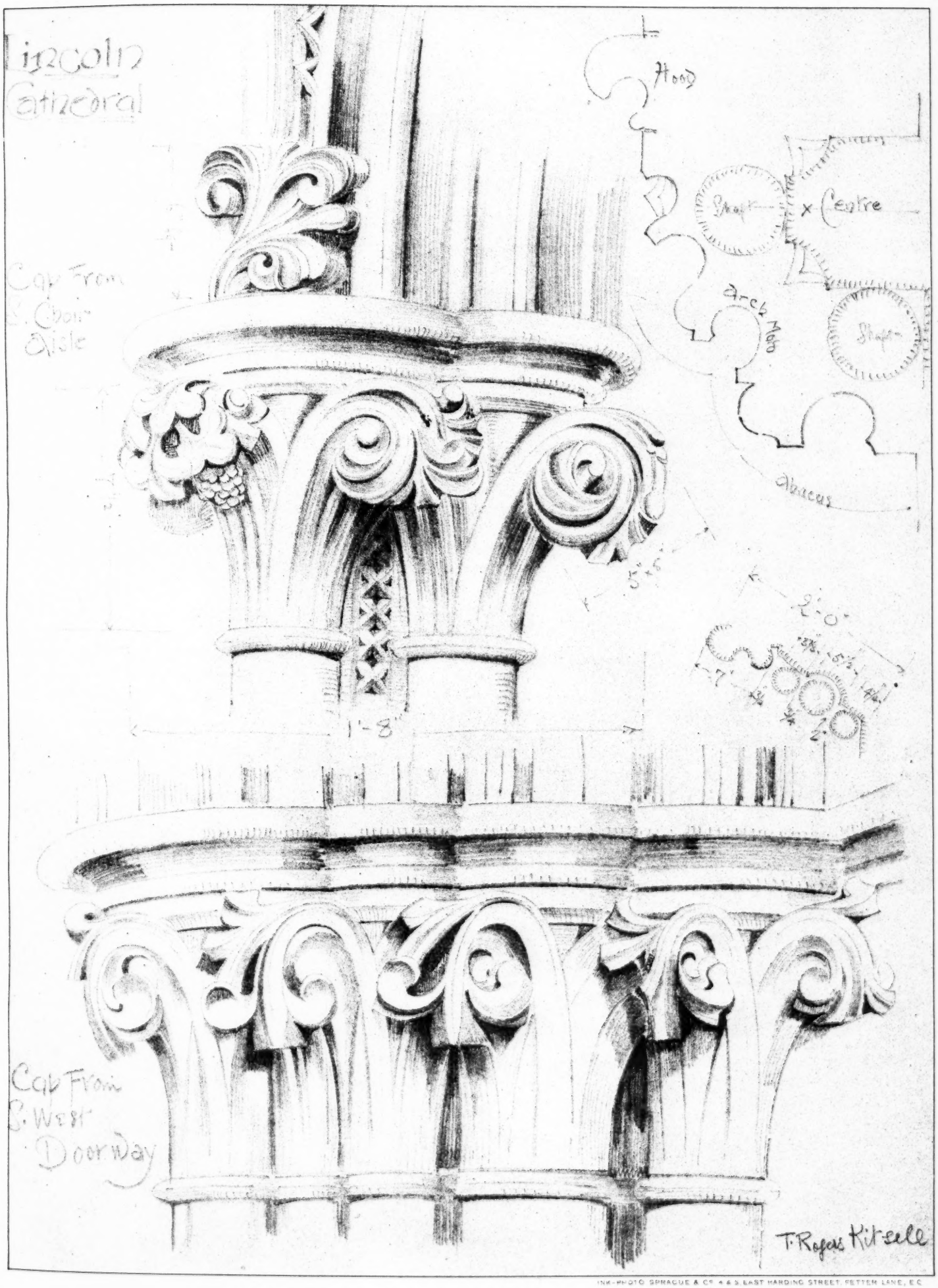
Lincoln Cathedral.

The Western Towers.

These towers are fourteenth Century additions to the Norman Towers of Remigius (1074). They are as well worthy of study as any part of the building but it is difficult to obtain a suitable place from which to make a careful sketch. The above was done from a considerable distance.

Robert Bagg
September 1889.

NK-PHOTO SPRAGUE & CO. 4 & 5 EAST HANDING STREET PETTER LANE E.C.



INK-PHOTO SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

Lincoln Cathedral

The North Transept from the Cloisters.

Main spiral.

Surfaces at angle of 45° loses itself gradually.

John Begg.
August 20th 1859.

INK-PHOTO. SPRAGUE & Co. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.